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Healthcare and Education Access for Remote Residents by Telecommunications

An Examination of Three Policy Issues in Relation to Telehealth

A Report Submitted to the
University of Ottawa Heart Institute

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INTRODUCTION

The vastness of Canada has made the delivery of health services to its widely dispersed population difficult at the best of time. The adoption of innovative approaches or technologies is often a necessity. The emergence of telehealth is a case in point. Canada is one of the first countries in the world to apply telecommunications technology to health care delivery. For instance, in 1956, Dr. Feindel, a neurosurgeon in Saskatoon, used closed circuit television to transmit live EEG data and Dr. Albert Jutras, a radiologist in Montreal, pioneered teleradiology in 1958 (Wright, 1998).

Telehealth, broadly defined, is the use of communications and information technologies to overcome geographic distances between health care practitioners or between practitioners and service users for the purposes of diagnosis, treatment, consultation, education and health information transfer. Telehealth is increasingly seen as an important tool for enhancing health care delivery, particularly in rural and remote areas where health care resources and expertise are often scarce and sometimes non-existent. Services and expertise from major centres and institutions can be brought to such communities with the help of telecommunications. Over the last few years, there has been a rapid increase in telehealth activities. A recent nation-wide survey conducted by Industry Canada has identified over 70 telehealth projects. The founding of the Canadian Telehealth Society and the Telehealth Association of Ontario in 1998 reflects the recent resurgence and interest in telehealth-related activities in this country.

Until recently, most telehealth projects and studies have focused on the technological and clinical aspects. Also, there has been much discussion but little validated information on the economic aspects of telehealth. More and more people, however, are beginning to ask questions about the policy aspects of telehealth. They are interested in finding out how telehealth can be integrated into the health care system and how certain policies may facilitate or hinder the wider use of telehealth in Canada. Since some research teams at the University of Ottawa Heart Institute (UOHI) have addressed such policy issues as liability and confidentiality, this chapter focuses on three major policy issues, namely, physician reimbursement for telehealth practice, inter-jurisdictional licensure of physicians in telehealth practice and the role of telehealth in the changing health care system in Ontario.

The reimbursement issue is critically important because unless physicians and other practitioners are paid for providing telehealth services, few would be interested in involving in telehealth activities beyond time-limited pilot projects. The licensure issue is also important because unless practitioners can carry out telehealth activities across jurisdictional boundaries, the ability of the telehealth technology to overcome geographic distances will be severely limited to within a particular jurisdiction. Finally, it is argued that unless telehealth is part of an integrated health care delivery system, its potential for growth will be limited. Thus, it is important to examine some of the major trends in health care and their implications for telehealth and to discuss how telehealth can be used to support the health care system. These three issues will be dealt with separately in the following chapters.

More detailed information on research methodology will be provided in each of the following chapters. The examination of policy issues and policy options is informed by an extensive review of the literature and pertinent policy documents and a survey of telehealth experts in Canada and abroad.

REIMBURSEMENT FOR TELEHEALTH PRACTICE

One of the major policy issues concerning telehealth is reimbursement, especially in relation to whether and how physicians are compensated for their involvement in telehealth activities. Potential problems relating to reimbursement have received considerable attention and discussion, but progress has been slow in some provinces. While many categories of health care practitioners are involved in telehealth services, much of the discussion in this paper centres on physicians because the impact of reimbursement policies is mostly on medical practitioners at this stage of telehealth development. However, many of the issues and policy options discussed are equally pertinent to other practitioners.

This chapter is divided into seven major sections. Following the Introduction, the research methodology is outlined in the second section. In Section 3, the policy issues are identified and there significance discussed. The major findings and analysis are presented in the two following sections. Section 4 discusses the status of practitioner reimbursement as it relates to telehealth. It also describes how Canada and selected foreign countries deal with this problem. Section 5 presents a number of policy options in addressing the reimbursement issue. Each option is also examined in terms of its pros and cons. Section 6 identifies several related issues. This is followed by the final section, which discusses telehealth reimbursement issues from a broader perspective. The paper also contains two appendices that list the sources of information and individuals contacted.

Research Approaches

The core of the present analysis is an examination of several policy options and some factors that may complicate the reimbursement issue. The policy analysis is informed by an extensive review of the literature and suggestions from many knowledgeable individuals in Canada and selected foreign countries who were surveyed or interviewed in relation to this study.

Reviews of Literature and Documents

Although telehealth is developing at a breakneck pace, the amount of literature available on reimbursement issues in conventional print format is very limited. For this reason, the research team has adopted a more encompassing approach in the literature search. In addition to searches in academic and professional publications, the research team has expanded the search to include other sources such as World Wide Web sites and unpublished reports and documents from various government agencies and telehealth projects. A more detailed description of the literature search process and the results of the keyword and website searches are provided in Appendix A.

Survey of Telehealth Experts

Information was also obtained from telehealth experts. A list of the individuals who were to be surveyed was drawn up by the research team with inputs from different sources. This purposive sample of individuals included federal and provincial government officials, individuals knowledgeable in telehealth, representatives of professional associations and licensing authorities and telehealth experts in other countries. Foreign experts contacted were mostly from Australia, selected European nations and the United States. A list of the people surveyed or interviewed can be found in Appendix B.

A bilingual questionnaire was developed by the research team. It contains several blocks of questions, each of which focusing on a different issue, such as the nature of telehealth activities, policies on licensure or reimbursement, etc. The list of questions was tailored to each respondent to eliminate irrelevant questions. Some questionnaires contained selected blocks of questions chosen to fit the interest or expertise of individual respondents. In most cases, the questionnaires were sent via e-mail. Individuals were given the choice of responding by e-mail or a telephone interview. About half of those contacted chose to be interviewed. Francophone subjects were interviewed in French. Most telephone interviews lasted from 30 to 50 minutes and were tape-recorded with the permission of the interviewees. The recording was then transcribed or summarized. Those interviewed were given assurance that statements made in the report would not be attributed to individual interviewees.

Nature of The Issue

The absence of policies regarding physician reimbursement for engaging in telehealth practice could stifle the development of telehealth. At present, most provincial health care insurance plans require that the patient be seen in person by a physician in order for a bill to be submitted by the physician. Because most of the current telehealth initiatives are pilot projects or clinical trials located at universities or major teaching hospitals, physician reimbursement has not been a major concern since most physicians involved treat their participation as research activities or because they are in alternative payment schemes (like salary or capitation). However, unless the reimbursement issue is appropriately addressed, it is unlikely that telehealth will be implemented on a broad scale. Physicians are unlikely to provide extensive telehealth services if they are not compensated, in one way or another, for their time and effort.

This problem is not unique to Canada. There are similar situations in most countries where physicians are predominantly reimbursed on a fee-for-service basis (see next section). Most of the telehealth experts surveyed and most of the studies reviewed regard the current lack of payment for telehealth practitioners to be a major barrier to the wider use of telehealth. A survey conducted by the Secretariat of the Advisory Council on Health Info-structure, Health Canada, also reveals that reimbursement was seen as crucial to the development of telehealth services in Canada. Respondents to that survey believed that there was a policy void and that there was no coordinated approach across the country in relation to telehealth reimbursement (Advisory Council on Health Info-structure Secretariat 1998).

Current Status

Before presenting and discussing policy options, it is useful to review the status of reimbursement arrangements in relation to telehealth. The status in Canada and several foreign countries are highlighted as follows.

Canada

- At present, four provinces – Alberta, Saskatchewan, Manitoba and Nova Scotia – have some policies or programs in relation to physician reimbursement for telehealth practice. In the rest of the country, there are no official telehealth fee schedules or policies regarding reimbursement. In what follows, the situations in selected provinces are described.

- *British Columbia:* In British Columbia, telemetry (defined as the electronic transmission of data such as X-ray images) can be billed to the Medical Services Plan, the provincial health insurance plan, under certain conditions (British Columbia Medical Services Plan, 1998).
- *Alberta:* In Alberta, the Telehealth Co-ordinating Committee has been examining the issue of reimbursement for some time. Consultations between Alberta Health and the Alberta Medical Association resulted in amendments to the Schedule of Medical Benefits with respect to telehealth medical services, effective April 15, 1999. In effect, physicians are compensated for providing many medical services via telehealth. "'Telehealth service' is defined as a physician delivered health services provided to a patient at a designated RHA (Regional Health Authority) telehealth site, through the use of videotechnology, including store and forward. The patient must be in attendance at the sending site at the time of the video capture. Telehealth services do not include teleradiology and telepsychiatry" (Alberta Health, 1999).
- *Saskatchewan:* Physicians in Saskatchewan can now be paid for services provided through telehealth. Following successful negotiations between the Medical Services Branch and the Saskatchewan Medical Association, the province has put in place a fee-for-service schedule for telehealth services provided in approved facilities. Specialists in pediatrics, internal medicine, physiatrics, medical genetics, cardiology, neurology, psychiatry, dermatology, neurosurgery, general surgery, orthopedic surgery, plastic surgery, obstetrics and gynecology, urological surgery, ophthalmology and otolaryngology can bill the Medical Services Branch for telehealth services with direct interactive video links with patients. Family physicians and general practitioners can also bill if they are required at the referring end to assist with essential physical assessment without which the specialist service would not be effective (Diane Tucker and Ian Sutherland, personal communication).
- *Manitoba:* Manitoba allows telehealth services to and from provincially approved sites only. Fees are paid for consults provided by live and store-and-forward telehealth services. It also allows fees for assisting physicians at the sending site, if they are deemed necessary. However, general practitioners cannot be receiving physicians. Premium fees are allowed for emergencies and after-hour consultations.
- *Ontario:* There are a number of major telehealth pilot projects in Ontario, including the UOHI HEARRT project, the Northern Ontario Remote Telecommunications Health Network Demonstration Project (NORTH Network), Project Outreach, the Physical Rehabilitation Distance Communication Initiative, the Coordinated Health Information for Chatham-Kant project, and the Hospital for Sick Children telehealth project, many of which are funded by the Ministry of Energy, Science and Technology under the Telecommunications Access Partnership Program. However, there is no official telehealth reimbursement policy in Ontario. In the Hospital for Sick Children project, participating physicians are not reimbursed separately as they are on an alternative payment scheme (i.e., non-fee for service). In the UOHI project, physicians participate in a research capacity and are not separately reimbursed. In the NORTH Network project, physicians are compensated by the project for their participation. The government is under increasing pressure to consider reimbursing physicians for telehealth services. In his report to the Minister of Health, Dr. McKendry (Fact Finder on Physician Resources in Ontario) recommends that in order to support the provision of telehealth services, "the Ministry of Health and Long-Term Care should consider a number of options for appropriately compensating physicians for services delivered, including working with the OMA to amend the current fee schedule" (McKendry, 1999; p. 86).
- *Quebec:* In Quebec, only radiologists using teleradiology are reimbursed as a regular service. The provincial government has no official policy on telehealth or telehealth

reimbursement, but is examining the issues.

- *New Brunswick:* At present, there is no provision in New Brunswick's Medicare to reimburse telehealth services provided by physicians, but the province is looking at ways to incorporate telehealth services in the Schedule of Fees. For example, it is working on definitions from a payment perspective, assessment rules to be applied, ways to identify telehealth services in the Medicare database and requirements for new fee codes. It hopes to start negotiations soon with the New Brunswick Medical Society to have the items and definitions added to the Schedule of Fees (Linda Lingley, personal communication). In addition, the Physician Issues Workgroup of the Provincial Telemedicine/Telehealth Coordinating Committee (PTTCC) has prepared a background paper on reimbursing physicians for telehealth practice. The province pays physicians for some telehealth services. Teleradiology, for instance, is reimbursed using existing fee codes. Most teleconsultations that are currently reimbursed occur on an interprovincial basis (New Brunswick PTTCC, 1998).
- *Nova Scotia:* To date, the boldest and most comprehensive approach in relation to physician payments for telehealth services has been introduced in Nova Scotia. The Nova Scotia Medical Services Insurance made an announcement on January 29, 1998: "The Medical Society and government are in the early stages of negotiations for permanent telemedicine fees. In the short term we will honour interim fees for this modality of communication and consultation between physicians and patients.... Specialists will be paid the regular major or minor consultation fee (as if the patient were physically present with the specialist). Consult letters to follow in each instance. Family practitioners, when their attendance is required to facilitate the consultation, may charge the equivalent of an office visit or 10.5 units.... In a circumstance where an inordinate amount of time is required of any physician in the management of a clinical problem utilizing telemedicine modality, that physician may claim at the rate of one (1) unit per minute" (Nova Scotia Medical Services Insurance, 1998). This telehealth payment arrangement is to be in effect for three years. An extension of this arrangement beyond the 3-year period or a decision to make it permanent will, presumably, depend on the success of the program. As well, Nova Scotia has planned to change existing legislation that requires face-to-face consultation between physician and patient in order for physicians to be reimbursed.
- *Newfoundland:* In Newfoundland, tele-EEG and teleradiology are covered by the provincial health insurance plan. Payments for such services are at the same rate as services performed in the conventional manner. As of 1999, physicians providing child telepsychiatry services are reimbursed by the Newfoundland Medical Care Commission. For example, the rate for a child psychiatry consultation is $117.75 (Blair Fleming, personal communication,1999). Other personnel involved in telehealth may receive compensation through a negotiated contract or as part of their academic or clinical salary (Elford, 1998). Offshore telehealth services (e.g., Hibernia) are funded by private corporations.

Australia

- The Australian Medicare system pays a physician for providing services to a patient in a face-to-face situation. Medicare does not currently reimburse physicians for telehealth services. At this time, the major use of telehealth is by psychiatrists who tend to be funded on a salary or sessional basis or by radiologists on private contract. Physician reimbursement is likely to become an issue as more private-practice physicians become involved in telehealth (Mitchell, 1998b, pp. 27 & 35).

Europe

- In Norway, specialists are paid a salary for duties performed at hospitals. General practitioners, on the other hand, are either salaried or capitated. Fewer than two percent of physicians charge their patients directly. In August 1996, a national telehealth fee schedule was implemented, making telehealth services officially reimbursable. The government pays the provider hospital for patient consultations using telehealth. A routine telehealth consultation is reimbursed at the rate of 400 NKr and a radiological examination at 150 NKr (Bergmo, 1997)
- Physicians involved in telehealth in Ireland are not reimbursed. Telehealth is not a chargeable service. It is seen as a mechanism for performing existing tasks in a more efficient manner.
- In the United Kingdom, health care is mostly provided through the National Health Services (NHS), which is tax-funded. Most physicians working within the NHS are salaried. Therefore, when physicians deliver care via telehealth, they would not be separately paid by NHS. Telehealth reimbursement has not yet emerged as a policy issue.

The United States

- At this time, telehealth services are generally not reimbursed. Most third-party payers have taken a wait-and-see approach toward telehealth payments. There have been some significant developments, particularly in the Medicaid and Medicare areas.
- On the Federal government side, Medicaid and Medicare have varying policies on telehealth. Medicaid coverage for telemedicine varies from state to state. As of August 1998, Medicaid reimbursement for services provided via telehealth is available in Arkansas, California, Georgia, Illinois, Iowa, Kansas, Montana, North Dakota, South Dakota, Virginia and West Virginia. In many of these states, payment is on a fee-for-service basis, which is the same as the reimbursement for covered services furnished in the conventional face-to-face manner. Reimbursement is made at both ends (i.e., hub and spoke sites). In general, states have wide latitude in defining telemedicine services that can be reimbursed (National Rural Health Association, 1998; US Department of Commerce, 1997; US Health Care Financing Administration, 1998b)
- Currently, under Medicare, if standard medical practice does not require face-to-face contact between the patient and the practitioner, then it will cover the service, as in the case of teleradiology and physician interpretations of EKG and EEG readings that are transmitted electronically. Medicare does not cover consultations and other physician services delivered through telecommunications (US Health Care Financing Administration, 1998a)
- The Balanced Budget Act of 1997 (Public Law 105-33) has included a telehealth provision (Section 4206). The US Congress has required that, not later than January 1, 1999, Medicare Part B reimburses physicians for professional consultations via telecommunications systems in certain rural areas. The payment will not exceed the current fee schedule of the consulting physician. It will not pay for telephone line charges or facility fees; and the beneficiary may not be billed for such charges (Health Data Network News, 1997; Herrick, 1998; US Health Care Financing Administration, 1998a).
- On the private-sector side, most private third-party payers have been reluctant to pay for telehealth services. Only one private insurer, Blue Cross/Blue Shield of Kansas, has a formal policy to pay for certain telehealth services furnished by physicians licensed to practice in that state (US Department of Commerce, 1997).

- While the managed care sector has been slow to deploy telehealth, there is a growing number of managed care plans, such as Allina Health Systems of Minneapolis and Methodist Hospital of Indianapolis, which have successfully included telehealth applications. In addition, some important legislative changes have recently been introduced which may encourage greater use of telehealth in managed care. Louisiana has passed a law dealing with telehealth reimbursement that prohibits insurance carriers from discriminating against telehealth as a medium for delivering health care services. Similarly, California has passed California State Bill 1665 (1996) requiring private managed care plans to cover telehealth services (US Department of Commerce, 1997).

Policy Options

The examination of policy options is made difficult by the fact that what needs to be considered is not just whether telehealth physicians should be reimbursed. Nobody has suggested that physicians should not be paid for providing medical care via telehealth if telehealth services are proven effective and are part of the service delivery system. What are under consideration and being debated are the methods of reimbursement and the timeframe for implementing reimbursement policies. As there are many possible combinations of these factors, only the major options are presented for discussion. In order to facilitate deliberation and decision-making, each of the policy options is examined in terms of its strengths and weaknesses from a policy-implementation perspective.

The Status Quo

The status quo option means that physicians providing telehealth services will not receive fee-for-service or other forms of reimbursement, with the possible exception of teleradiology and telepathology, areas of clinical practice which typically do not require physician-patient face-to-face interaction. Physicians may take part in telehealth work as research activities or as part of an institution's or a program's routine operation. This approach is what most provinces/territories are following at this time either by design or by default. While not ruling out full-scale or partial reimbursement for telehealth practice in the future, this approach opts for a wait-and-see strategy.

Pros:

- Telehealth is still largely developmental in nature, with many unknowns. There are still many technological, clinical, legal and economic issues waiting to be resolved. A wait-and-see strategy allows governments to carefully assess the situation and respond appropriately.

Cons:

- The status-quo option will considerably slow further developments of telehealth in Canada. If practitioners are not reimbursed for their work, then there is little incentive for their active involvement. As a result, Canada may be left behind.
- The development, application and diffusion of telehealth technologies are likely to continue apace in other countries, particularly the United States. Because telecommunications respect no geopolitical boundaries, Canada cannot effectively close its borders to telehealth "intrusions" from outside. By not positioning itself strategically, Canada may be forced to respond passively to external challenges and may lose a competitive edge in the fast developing field of telecommunications technology and its application to health care.

Selective Reimbursement of Telehealth Activities

This is a middle-ground position between the status quo and full-scale telehealth reimbursement. If this approach is adopted, a provincial/territorial government would selectively fund certain telehealth activities or programs, and participating physicians would be reimbursed by fee-for-service and/or under alternative payment plans. It should be noted that this approach is not the same as telehealth pilot or demonstration projects which are mostly experimental in nature, short term in duration and very small in scale. As will be discussed in the final section of this chapter, such pilot or demonstration projects, while useful and necessary, are typically unable to show the real impact of telehealth on the practice of medicine, health services delivery, and the overall health care system. Telehealth needs to be tried out in real-life settings and on a much broader scale. The Medicare payment scheme for telehealth, as mandated under the US Balanced Budget Act of 1997 and to be implemented by January 1, 1999 (see above), is an example of a selective reimbursement approach since telehealth services will only be reimbursed for Medicare beneficiaries living in designated rural areas.

Pros:

- This "gradualist" approach avoids both extremes, i.e., putting a brake to telehealth development or making a total commitment to a new health care delivery modality before all the evidence is in.
- This represents the second phase in telehealth development, a significant step beyond pilot and demonstration projects that have been proliferating in many parts of the country. The outcomes of the second-phase programs and activities and their direct and indirect effects on the health care system could further inform decision-making in relation to telehealth reimbursement and other policies.
- A "gradualist" approach may allow health care planners an opportunity to decide how best to integrate telehealth into the broader health care system.

Cons:

- This may delay funding telehealth practice on a broad basis. The uncertainty and the "mixed messages" may hamper telehealth development.

Reimbursement under Alternative Payment Plans

Under this approach, physicians providing telehealth services will be reimbursed, but only if they are in alternative payment plans (i.e., non-fee for service). This approach approximates the situations in Norway and the NHS in the United Kingdom where physicians are mostly salaried or capitated. As will be explained in greater detail in the final section of this chapter, one of the major concerns of policy-makers is the unknown but potentially costly financial implications of combining fee-for-service payment with a new service delivery modality that could greatly increase access and utilization.

Pros:

- Putting telehealth physicians on salary or capitation may avoid potential problems associated with fee-for-service payment. At the very least, it could provide some predictability in the costs of providing telehealth services.
- Many provinces are exploring and experimenting with physician payment mechanisms other than the traditional fee-for-service model. The numbers of physicians on alternative payment plans are expected to increase, and with it, telehealth services can be expanded.

Cons:

- The number of physicians, especially specialists, on alternative payment schemes is still relatively small in Canada, with the possible exception of Quebec. If only non-fee-for-

service physicians will be funded for providing telehealth services, it could severely limit the number of participants, at least in the near future.

- Physicians who are on existing alternative payments plans may not see telehealth services as part of their responsibilities. For instance, current alternative payment plans in Ontario do not specify the provision of telehealth services in the contracts. Some physicians may view telehealth activities as additional responsibilities.

Full-scale Reimbursement

If the full-scale reimbursement approach is adopted, all physicians who provide telehealth services will be reimbursed through fee-for-service and/or under alternative payment plans. The existing fee schedule may be used for telehealth reimbursement or a special fee schedule for telehealth may be negotiated. As well, there may be some exceptions and conditions attached to this reimbursement model. The telehealth reimbursement policies of Nova Scotia and Norway are examples of this approach, with some qualifications.

Pros:

- This would ensure the fullest participation of physicians in telehealth.
- There will be improved access to specialty medical care, particularly by rural residents.

Cons:

- The cost implications are uncertain.
- There could be a rush into adopting telehealth without first determining how it should be integrated with other aspects of the health care delivery system and what impact it might have on the health care system as a whole.

Related Issues

Practitioner reimbursement is just one aspect of telehealth funding. There are a number of related issues mostly concerning what should be funded, how and by whom. However, because an in-depth examination of such issues is beyond the scope of the present study, the following discussion is cursory in nature. They are raised primarily to encourage further discussion and to point out that it is not enough to look just at the physician-reimbursement aspect of telehealth funding.

- If telehealth consultations are reimbursable, as most teleconsultations involve the specialist and the referring physician, do both physicians bill for the teleconsultation or just the specialist? Must the referring physician be present at the teleconsultation session? As noted earlier, the US Balanced Budget Act of 1997 has mandated Medicare payment for telehealth consultations in certain rural areas. The referring and consulting physicians will share the Medicare professional payment (US Department of Commerce, 1997). The Nova Scotia telehealth payment plan stipulates that if the referring family physician is required to be present at the session to facilitate the consultation, he/she may bill for the equivalent of an office visit.

- Telehealth services involve other expenses, such as hardware, software and transmission costs, which are not traditionally billed to third-party payers. Will third-party payers be expected to cover such infrastructure-related costs? The US Balanced Budget Act of 1997 has mandated Medicare payment for professional consultations via telecommunications systems in certain rural areas. The Act specifies that such payments will *not* include reimbursement for telephone line charges or facility fees.

While radiologists and pathologists in Canada can bill for a professional component, it is not clear which telehealth site would bill for the technical component. Hospitals or other facilities may not wish to take part in telehealth activities if they are not reimbursed for their investment in the technology and related overhead costs.

- Who besides physicians should be reimbursed for their participation in telehealth activities? For instance, should a nurse be paid and how should she/he be paid if she/he presents the patient to the consultant and assists at the teleconsultation session? Is this a relevant issue when most nurses are salaried employees in hospitals? In the US, Perednia (1998), on behalf of the Association of Telemedicine Providers, has argued that supporting practitioners such as audiologists, speech therapists, dieticians should be reimbursed if they are involved in teleconsultations. Similar views have been expressed by the Centre for Telemedicine Law (1998).

Discussion

Whether or not to reimburse physicians for providing telehealth services is a relatively new issue since it is only recently that advances in telecommunications technology have made the delivery of a broad range of clinically sound medical care at a distance a reality. There are different views and positions on this issue within Canada and in other countries. For instance, Nova Scotia has taken a bold step by introducing a comprehensive telehealth reimbursement scheme. Alberta and New Brunswick appear to be on the verge of some major policy decisions. Other provinces and territories, however, are much more cautious. They have funded some pilot projects or have struck committees to look into the matter, but have not made major changes to reimbursement policies.

The problem may not be reimbursement per se. The problem may not even be the often-blamed impediment -- the need to see a patient face-to-face before billing can be submitted by a physician for fee-for-service payment. According to a senior Ministry of Heath official in one of the provinces, the requirement for face-to-face contact between patient and physician can be altered quite easily by making some minor amendments to the regulation. No major changes to the health insurance legislation are needed. What, then, explains the reluctance on the part of many Ministries of Health to make the necessary regulatory or legislative changes in order to make telehealth practice compensatable? It has been suggested that uncertainties surrounding the impact of telehealth are a major reason. Otherwise put, provincial governments, as well as third-party payers in other countries, are not sure about the financial implications of paying for telehealth consultations on demand. The medical community may be just as uneasy because many physicians are unsure about the implications of telehealth for them.

From the government's perspective, one of its major concerns is uncontrolled or uncontrollable utilization, which could drive up health care spending. Commenting on payment for telehealth services in Australia, John Mitchell & Associates (Mitchell, 1998a, p. 2) asserts that “the issue of fee payment is complex, involving control over the extent of utilization and level of health care expenditure”. In its report to the US Congress, the Department of Commerce (1997) has issued a similar warning about the risk of excessive use. It maintains that regardless of any cost saving that may be gained from telehealth, greater access to medical care, particularly specialty care, could very likely generate greater expenditures for payers. The New Brunswick PTTCC (1998) has also cautioned policy-makers to consider not only the potential for unit cost reductions generated by the use of telehealth, but also the potential for cost increases generated by improved access to services.

Some physicians are equally concerned about the impact of telehealth on their financial well-being. This is because telehealth could affect referral patterns and/or clientele that have taken years to establish. For example, in the US, pathological specimens are now routinely shipped to out-of-state reference laboratories for processing and interpretation by pathologists. X-rays are electronically transmitted to distant radiologists for interpretation. Managed care organizations may use teleradiology to establish networks that could by-pass local doctors. Similarly, a hospital may replace its local radiologists by using a system connected with an out-of-state radiology group. Changes in referral patterns or loss of patients could, in turn, impinge on the professional incomes of some physicians. Such concerns, justified or not, have led to attempts to erect barriers such as the closing of "consultation exceptions". Kansas was the first state in the US to directly apply its licensing statute to telehealth, introduced in response to concerns expressed by the Kansas Medical Society about teleradiology (Berger and Cepelewicz, 1996; Wood and Whelan, 1998).

While the above examples refer to American situations, there is no reason to believe that similar problems will not happen in Canada. The New Brunswick PTTCC (1998) has warned against the reduction of local direct services in favour of specialized services provided at a distance by means of telehealth. Already, there are reports that some physicians are concerned that telehealth may cut into their practice (Robb, 1997). Anticipating these problems, the World Organization of Family Doctors (1998) has recommended that telehealth policies and decisions should not adversely affect the local delivery of health care in rural communities.

Unless there is evidence that telehealth will not lead to health care cost escalation, unless measures can be found to ensure proper utilization and unless physicians can be assured that telehealth will not pit one group of doctors against another, most third-party payers and medical associations are in no hurry to support full-scale implementation of telehealth services. Ironically, at this important juncture in the development of telehealth, we face a Catch-22 situation. Because of uncertainties and concerns about the impact of telehealth, many third-party payers, including provincial/territorial Ministries of Health, are reluctant to change reimbursement policies to fund telehealth. But unless telehealth is practised in real-life settings and on a much broader scale, we will not be able to assess its real impact and implications. Telehealth pilot projects are needed and may be able to demonstrate technological soundness, clinical efficacy, cost effectiveness and patient/provider acceptance, but they tend to be too small, too localized, too short in duration and/or too "artificial" (e.g., physicians volunteering all of their time and services) to affect service utilization, patient referral patterns and physician market shares in a substantial way.

In a more positive vein, telehealth may offer an opportunity to reconfigure the health care system in such a way that fosters genuine collaboration between primary care physicians, specialists and other practitioners and brings service consumers and service providers closer to one another. Telehealth may be offered as a program of integrated medical care rather than a set of discrete services, contact episodes and payments.

It is in this context that the telehealth initiatives in Alberta, Nova Scotia, Norway and the US Medicare system are expected to play pioneering roles. These large-scale, real-life "experiments" will be monitored with great interest by telehealth technology developers, the medical community, health care policy-makers and researchers alike. Their performance, particularly their impact on health care spending, and their ability to become an integral part of the health care system will have a decisive influence on the future development of telehealth in other parts of this country and the world.

PHYSICIAN LICENSURE ISSUES IN RELATION TO TELEHEALTH

Licensure refers to the formal process by which an official agency grants an individual the legal right to practice an occupation. As noted earlier, unless the issue of licensure is appropriately addressed, the effectiveness of the telehealth technology is considerably curtailed since regulatory constraints may override technological capability. Potential problems pertaining to licensure have received considerable attention and discussion, but there has been little concrete action to date.

While many categories of health care practitioners are involved in telehealth services, much of the discussion in this chapter centres on physicians because the impact of licensure is mostly on medical practitioners at this stage of telehealth development. However, many of the issues and policy options discussed in this chapter are equally pertinent to practitioners in other disciplines. Although cross-border telehealth practice can be interprovincial or international in nature, the emphasis here is on inter-jurisdictional telehealth services within Canada, rather than across national borders.

This chapter is divided into seven major sections. Following this introduction, the research methodology is outlined in the second section. In Section 3, the policy issues are identified and their significance discussed. The major findings and analysis are presented in the two following sections. Section 4 describes the status of licensure as it relates to telehealth. It also examines how Canada and selected foreign countries deal with this problem. Section 5 presents a number of policy options in addressing the licensure issue. Each option is also examined in terms of its pros and cons. Section 6 identifies several other issues related to licensure. This is followed by the conclusion section.

Research Approaches

The core of the present analysis is an examination of several policy options and some factors that may complicate the licensure issue. The policy analysis is informed by an extensive review of the literature and suggestions from many individuals in Canada and selected foreign countries who were surveyed or interviewed in relation to this study.

Reviews of Literature and Documents

Although telehealth technology and activities are developing at a breakneck pace, the amount of literature available on licensure issues in conventional print format is very limited. For this reason, the research team has adopted a more encompassing approach in the literature search. In addition to searches in academic and professional publications, the research team has expanded the search to include other sources such as World Wide Web sites and unpublished reports and documents from various government agencies and telehealth projects. A more detailed description of the literature search process and the results of the keyword and website searches are provided in Appendix A.

Survey of Telehealth Experts

Information was also obtained from telehealth experts. The research team drew up a list of the individuals to be surveyed with inputs from experts in the field. This purposive sample of individuals included federal and provincial government officials, individuals knowledgeable in telehealth, representatives of professional associations and licensing authorities and telehealth experts in other countries. Foreign experts contacted were mostly from Australia, selected European countries, and the United States. A list of the people who were successfully contacted can be found in Appendix B.

The research team developed a bilingual questionnaire. It contains several blocks of questions, each of which focusing on a different issue, such as nature of telehealth activities, policies on licensure and reimbursement, etc. The list of questions was tailored to each respondent to remove irrelevant questions. Some questionnaires contained selected blocks of questions chosen to fit the interest or expertise of individual respondents. In most cases, the questionnaires were sent out via e-mail. Individuals were given the choice of responding by e-mail or a telephone interview. About half of those contacted chose to be interviewed. Francophone subjects were interviewed in French. Telephone interviews lasted from 30 to 50 minutes and were tape-recorded with the permission of the interviewees. The recording was then transcribed or summarized. Those interviewed were given assurance that statements made in the report would not be attributed to individual interviewees.

Nature of the Issue

The advantage of telehealth lies in the fact that it is not constrained by geographic distance in health care delivery and that it recognizes no provincial or national boundary. However, statutory regulation of health care practitioners and related licensure requirements tend to erect barriers between jurisdictions (Johnson and Pong, 1996). This is particularly true in countries like Canada where the licensing of health care practitioners is the responsibility of the provinces. Although professional regulation is meant to protect the health and safety of the public by ensuring that practitioners are qualified and accountable to their regulatory authorities, it sometimes imposes constraints that may stifle flexibility or inhibit innovation. For instance, practitioners licensed in one jurisdiction may not be allowed to provide services in another without going through some cumbersome, time-consuming, and costly processes, thus greatly attenuating the utility of telehealth.

To date, most telehealth activities in Canada occur within a province and the same is true in the United States. However, this situation is bound to change as the number and diversity of telehealth services grow and as technology becomes more powerful and affordable. The wider application of telehealth (i.e., allowing practitioners in one jurisdiction to provide clinical services in another by means of telecommunications) requires overcoming some of the constraints imposed by licensure. It is not surprising that people with an interest in telehealth increasingly see licensure laws, in their current form, as an important issue in relation to inter-jurisdictional or cross-border telehealth activities.

According to the US Department of Commerce (1997), until recently, few states have addressed issues concerning out-of-state physicians engaging in telehealth practice. The situation in Canada is no different. According to a survey conducted by the Secretariat of the Advisory Council on Health Info-structure, Health Canada, while many professional and regulatory bodies believed that

licensure was an important issue for telehealth practice, none of them reported having developed policies on the licensure of telehealth practitioners.

Two aspects of licensure are particularly important for telehealth practice: Qualification and locus of accountability. The former refers to the fact that if different jurisdictions impose divergent entry-into-practice requirements, it may be difficult for physicians with one set of qualifications to get permission to practice in another jurisdiction that has very different qualification requirements. The latter refers to the jurisdiction that has the ultimate authority to investigate and discipline telehealth practitioners when things go wrong or when patients lodge complaints. In other words, in situations involving cross-border telehealth practice, to whom is a telehealth practitioner accountable? Is it to the jurisdiction in which he/she is licensed to practice or to the jurisdiction in which the patient resides? As Wood and Whelan (1998) have pointed out, tort jurisdiction may well prove to be one of the most contentious issues in telehealth practice.

Current Status

Before presenting policy options, it is useful to know the status of licensure arrangements in relation to telehealth. The situations in Canada and several foreign countries are highlighted as follows.

Canada

- No provincial/territorial medical licensing authority has developed policies or rules to regulate telehealth activities within its jurisdiction or inter-jurisdictional telehealth activities. Some preliminary discussions, however, have taken place among representatives of provincial colleges of physicians and surgeons. A background paper on telehealth has been prepared by Dr. John Carlisle, Deputy Registrar of the College of Physicians and Surgeons of Ontario, for the Federation of Medical Licensing Authorities of Canada in April 1997 (Carlisle, 1997). It discusses various regulatory issues that are likely to emerge when telehealth is conducted across provincial/territorial borders.
- The Federation of Medical Licensing Authorities of Canada also discussed regulatory issues in telehealth at its annual meeting in April 1998. A number of options were proposed, including regulation in the jurisdiction where the physician is located and regulation in the jurisdiction where the patient resides. Most of the colleges appeared to prefer the latter option. There seemed to be a general reluctance on the part of some colleges to relinquish control either to another province/territory or to a national body. There is also a strong view that patients should have to look no further than their own provincial/territorial regulatory authority to regulate the care they receive and for protection. As well, most colleges supported the idea of instituting a tele-licence as a way to regulate telehealth activities by medical practitioners.
- In June 1999, the group that had been selected by the Federation of Medical Licensing Authorities of Canada to review the issues of telehealth licensure presented four resolutions to the Federation. Resolution 2 states: “The Federation of Medical Licensing Authorities of Canada recommends to the licensing authorities that they adopt the position that when a physician provides a medical service by means of telemedicine, the service is deemed to occur at the patient’s location” (Federation of Medical Licensing Authorities of Canada, 1999). Resolution 3 states: “The Federation of Medical Licensing Authorities of Canada recommends to licensing authorities they adopt the position that physicians who wish to provide medical services by means of telemedicine in Canada

must satisfy the licensing or registration requirement of the jurisdiction in which their intended patients reside" (Federation of Medical Licensing Authorities of Canada, 1999). These four resolutions have been adopted by the Federation Board.

- A number of current telehealth projects are inter-jurisdictional in nature. For example, the Children's Telehealth Network links a number of hospitals in Nova Scotia, New Brunswick and Prince Edward Island. UOHI delivers medical services to Baffin Island via telehealth. In most of these cases, licensure has not been a barrier because informal or temporary arrangements have been made to enable clinical services to be delivered across provincial/territorial boundaries via telehealth.

Australia

- In Australia, physician licensure is a state matter and physicians are not permitted to practice in a state where they are not licensed. At this time, if a physician provides services across state borders, he/she is required to be licensed in more than one state. All states, however, recognize most professional registrations in another state without re-examination (John Mitchell and Associates, 1998).

Europe

- An European Communities Council Directive of April 5, 1993 has stipulated the free movement of physicians, as well as other health care practitioners, between the members states of the European Economic Community (EEC). This Directive establishes mutual recognition of diplomas, certificates and other evidence of formal qualifications between the member states. Article 2 of the Directive states that "Each Member State shall recognize the diplomas, certificates and other evidence of formal qualifications awarded to nationals of Member States by the other Member States..., as far as the right to take up and pursue the activities of a doctor is concerned, the same effect in its territory as those which the Member State itself awards" (Council of the European Communities, 1998).
- The above-noted Directive has shaped policies and legislation within EEC member states. For instance, the Directive stipulations have been made a part of Norwegian law by regulation in 1994. The Norwegian law stipulates that an applicant, who meets the requirements of the Directive, is allowed to practice medicine in Norway. However, as far as telehealth practice is concerned, there is no legislation pertaining to licensure requirements. It appears that with a medical licence, a physician in Norway can practice medicine in the conventional way or via telehealth.
- Only physicians licensed in the United Kingdom can practice medicine there on-site or via telehealth. However, within the EEC, it is not difficult to obtain licensure in any EEC country because of reciprocal agreements.

The United States

- There is a mixed situation in the US regarding telehealth licensure requirements. While there is progress in some states in removing licensure obstacles, new jurisdictional barriers have been erected in other states. In addition, several influential organizations have stated their official positions on this matter.
- Congressional interest in the licensure of telehealth practitioners has taken the form of requests for information and proposed legislation, but no action has been taken to date.

- In the past several years, at least eleven states, such as Connecticut, Indiana, Kansas, Oklahoma, Nevada, and Texas, have enacted regulations or legislation governing licensure of out-of-state telehealth practitioners. In all cases, except California, an out-of-state physician is required to obtain a full and unrestricted licence in order to provide clinical services directly to patients in the state on a regular basis. These regulatory requirements have created difficulties for inter-state telehealth practitioners (Centre for Telemedicine Law, 1997; Gobis, 1997 and 1998; US Department of Commerce, 1997).
- In 1994, the American College of Radiology adopted a "Standard for Teleradiology" which includes the recommendation that physicians engaging in teleradiology should maintain licensure appropriate to delivery of radiologic service at both the transmitting and receiving sites.
- The American Medical Association House of Delegates voted in June 1996 to adopt a policy which stipulates that "states and their medical boards should require a full and unrestricted licence for all physicians practising telemedicine within a state" (US Department of Commerce, 1997: p. 12).
- The College of American Pathologists has taken the position that a physician rendering primary diagnosis and/or treatment should have a full and unrestricted licence to practice medicine in the state in which the patient presents for diagnosis. This proposal would require physicians to have their licences endorsed in each state from which they receive patient specimens or information.
- The Federation of State Medical Boards has drafted a Model State Act designed to address telehealth-related issues. It proposes to create a special limited licence for physicians who practice medicine across state lines. Such physicians would be required to be licensed in the state where the patient is located (Centre for Telemedicine Law, 1997).

Policy Options

As long as telehealth practice is conducted on a trial basis or solely on an intra-provincial/territorial basis, there is no compelling need to address the licensure issue. However, as soon as telehealth is practised beyond its base jurisdiction, the issue of physician licensure emerges. Most of the experts surveyed in relation to this study believe that licensure barriers are real obstacles. Some potential solutions have been discussed in the literature and documents reviewed and a number of alternatives have been suggested by those surveyed.

A number of policy options are presented for consideration. In order to facilitate deliberation and decision-making, each policy option is examined in terms of its strengths and weaknesses from a policy-implementation perspective.

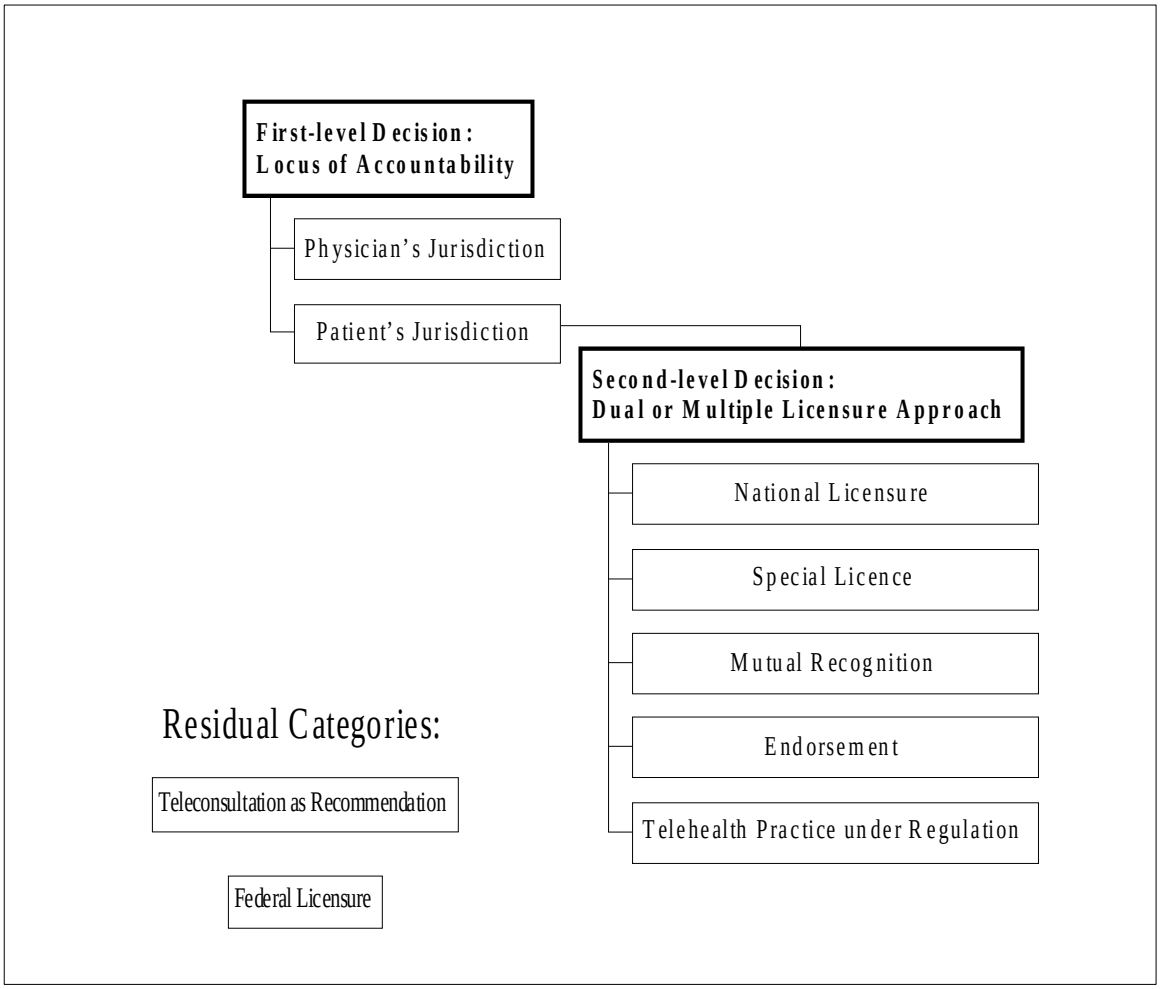
In relation to physician licensure, policy decision-making will likely take place at two levels.

- First, decisions will have to be made on matters pertaining to locus of accountability. Decisions on where accountability rests will influence decisions made at the next level. If the locus of accountability is the jurisdiction where the physician is licensed to practice, it will obviate the need for physicians to be licensed in multiple jurisdictions. On the other hand, if the locus of accountability is the jurisdiction in which the patient resides, physicians will have to be licensed in more than one jurisdiction.

- Second, assuming that the locus of accountability is the jurisdiction in which the patient resides, the task will then be to make the process of obtaining dual or multiple licences as easy and as least costly as possible. Again, there are several options.

To assist the presentation of a substantial amount of information, the two stages of policy decision-making and the various policy options are displayed in Figure 1.

Figure 1 Licensure Approaches and Decision Model



Locus of Accountability

For policymakers, the overriding concern is the location in which telehealth practitioners are to be held accountable. Under the existing licensure system, a physician can examine, diagnose and treat a patient from another province/territory as long as the patient travels to the physician. By viewing telehealth as a form of travel, it allows telehealth to be implemented within the current legal framework (Darer, 1998; Gitlin, 1997).

Physician's Jurisdiction as Locus of Accountability

If a telehealth patient is seen as having been "electronically transported" to his/her doctor, the patient is being treated in the jurisdiction where the physician is licensed to practice, and not in the patient's home province/territory. This approach has been advocated by the US Health Care Financing Administration which has stated that "...the use of telecommunications to furnish a medical service effectively transports the patient to the consultant...Therefore, we believe that the site of service for a teleconsultation is the location of the practitioner providing the consultation" (US Health Care Financing Administration, 1998). The Children's Treatment Network of Atlantic Canada also treats the physician's location as the place where the medical act occurs and, therefore, the patient is considered to be "transported electronically" to the physician. As noted previously, however, most professional organizations in the US have publicly stated their opposition to this approach. Similarly, in Canada, most of the provincial regulatory authorities polled by Dr. Carlisle have not supported this approach (Carlisle, 1998).

Pros:

- This interpretation could avoid a dual- or multiple-licensure problem. The advantage of having the locus of accountability in the physician's province/territory is that it would require no new licensure scheme, nor, for that matter, any new licence on the part of the physician. A physician would have to deal with a single set of rules, that of his/her own jurisdiction.
- By applying the same "electronic travel" analogy, physicians may not need to be credentialled in other hospitals or institutions where his/her telehealth patients are located (see Section 6.1 for a more detailed discussion on credentialling). This is because the physician is seen as practising from his/her base hospital and the patients are seen as having been "electronically transported" to the physician's hospital.

Cons:

- Some people believe that this approach would not afford out-of-province/territory patients sufficient protection. Opposition to this approach is based on the belief that the agency best able to ensure the maintenance of standards in the protection of the patient is the regulatory authority in the province/territory of the patient's residence (Darer, 1998; Federation of State Medical Boards, 1998).
- There may be practical problems involved in investigating complaints, misconduct or substandard care if the physician providing services is regulated in a jurisdiction different than that of the patient. For example, a patient may find it difficult or inconvenient to participate in a disciplinary proceeding in another province/territory.

Patient's Jurisdiction as Locus of Accountability

This is the reverse of the previous approach. The physician is seen as having been "electronically transported" to the patient's province/territory. Thus, the locus of accountability is the jurisdiction where the patient resides.

Pros:

- Provinces have always controlled the definition and content of what constitutes medicine within their jurisdictions. This favours an interpretation that would give each province the most control over the medical care received by its residents. Thus, the location of the patient should remain the location where the practice of medicine is deemed to occur.
- Some licensing authorities feel that if the locus of accountability is the jurisdiction where the patient resides, they can better ensure standards of practice and can better exert control by the threat of licence suspension or revocation.

- According to Canadian law, it is the locale of the act that determines where the law is applied. Thus, it would seem that where medical communication is received, a medical act is deemed to have occurred there.
- Although this approach would require physicians to be licensed in more than one jurisdiction, the requirement should not be overly onerous because of the fairly uniform qualification requirements in Canada. This is also because Canada, though very large in size, has a relatively small number of constituent jurisdictions, making obtaining multiple licences less laborious than, say, in the US.

Cons:

- Unless a telehealth doctor is licensed in the province/territory where the patient resides, the physician would be practising medicine without a licence. In other words, the medical practitioner would need to have dual or multiple licences. If the process of obtaining multiple licences is complex and costly, it may deter telehealth practice on a wider scale.

Dual or Multiple Licensure Approaches

If it is decided that the locus of accountability is the jurisdiction where the patient resides, physicians practising telehealth will need to obtain licences in more than one jurisdiction. Since all dual or multiple licensure systems require physicians to spend extra time, effort and expenses, it obligates policymakers and those in charge of the licensing process to find the most efficient and least costly approach. Several possibilities are discussed as follows.

National Licensure System

One possible solution is to implement a dual licensure system that combines a national licensing scheme with the existing provincial/territorial licensing scheme. It would maintain provincial/ territorial control over medical practice within a province/territory, but would provide a national solution to the problem of practising medicine across provincial or territorial boundaries. Advocates of this approach suggest adopting two requirements for obtaining a dual licence. First, the physician must have a provincial or territorial licence before he/she can apply for a national telehealth licence, thereby preventing a possible end-run around provincial/territorial regulations. Second, the national licence would only be valid to practice telehealth. A provincial/territorial licence would still be needed for face-to-face medical practice. According to Gitlin (1997), a national licensure precedent already exists in the US for physicians serving in the military, the Department of Veterans Affairs, the Indian Health Services and the Public Health Service. Several Canadian provinces have expressed an interest in examining or adopting a “tele-licence” approach. However, it is not known if the proposed “tele-licence” is equivalent to the national licence discussed here.

Pros:

- A national licensure system implies having a uniform set of entry-into-practice criteria. This would have the benefit of establishing some national standards for telehealth practice.
- Physicians engaging in telehealth would be required to obtain only one additional licence, i.e., the national telehealth licence, instead of a licence from every province or territory where he/she wishes to conduct telehealth practice.
- Some of the preconditions for a national licensure system already exist. For instance, there is an impressive similarity in the requirements to practice medicine in Canada (Crolla, 1998). As a medical-legal expert has observed, “the graduate of a Canadian medical school, who has passed the examinations of the Medical Council of Canada and is registered in the Canadian register established by the *Canada Medical Act*, and has

satisfactory post qualification training, will be unlikely to have any problem in becoming licensed in any province or territory in Canada" (Sharpe, 1987: p. 228).

Cons:

- It may require new legislation and/or extensive statutory amendments in order to introduce a national licensure system. It is not known how long and how much it would take to implement such a system.
- This may require the creation of another layer of regulatory bureaucracy; the cost and administrative implications of which have yet to be determined.

Telehealth Practice Under Special Licence

It may be possible to conduct telehealth practice under a special register or limited licence. Many provincial/territorial licensing authorities have one or more special licences or registers, which are known by different names in different jurisdictions, such as consulting and courtesy licences. Most of these special licences limit the scope of practice or allow the delivery of services under particular circumstances. However, the process for obtaining a special licence is usually less burdensome than for full licensure.

Pros:

- Practising telehealth under a special licence could reduce the administrative burdens for physicians from another jurisdiction who otherwise would have to obtain a full licence.
- If special licences can be used for the purpose of telehealth practice, there would be no need for major statutory or regulatory changes.

Cons:

- There may be differences among licensing authorities regarding such matters as retention of medical records, mandatory reporting of professional misconduct. This would mean that the physician would be treating different patients under different schemes.
- The special registers or licences usually impose limits on medical practice. For instance, some limit the practice to special settings where the registrant may need to be supervised, while others limit the practice to underserviced communities. Thus, the special registers or licences may not always be suitable for telehealth practice.

Licensure by Mutual or Reciprocal Recognition

There are subtle distinctions between reciprocal recognition and mutual recognition, but for the sake of brevity, these minor differences are overlooked and the two approaches are discussed together. A compromise between licensure by individual province/territory and national licensure, mutual recognition is a method of inter-jurisdictional licensure in which regulatory authorities enter into agreements to recognize the licensure policies and processes of a licensee's home jurisdiction and, therefore, a separate licence is not required. Mutual recognition could allow licensed physicians to engage in the full range of medical practice or in a limited scope, such as providing medical care via telecommunications only. Mutual recognition's typically entails a harmonization of standards and other conditions for licensure.

Pros:

- The mutual recognition approach allows a physician to practice in any of the jurisdictions that have entered into an agreement. Although dual or multiple licences are still needed, it would substantially reduce the time and effort needed to obtain licences to practice in other jurisdictions.

Cons:

- This approach requires two or more jurisdictions to agree on a set of uniform conditions such as qualifications, continuing medical education requirements, character reference, etc. If there are substantial discrepancies among the regulatory authorities in relation to licensure policies and processes, agreements on uniform requirements may be difficult to achieve.

Licensure by Endorsement

Licensure by endorsement means the recognition by one jurisdiction of a licence given by another jurisdiction, when the qualifications and standards required by the licensing jurisdiction are equivalent to or higher than those of the endorsing jurisdiction. Under this process, the applicant for endorsement is generally not required to retake the basic licensure examination. New Mexico, for instance, allows telehealth licensure by endorsement if a physician meets the requirements of the *Medical Practice Act* of New Mexico.

Pros:

- Licensure by endorsement minimizes, to a certain extent, the burden of obtaining dual or multiple licences since the licensure examination is usually waived.

Cons:

- Licensing by endorsement can still be time-consuming, costly and confusing because the requirements vary so much that, in some cases, it may be impossible for an endorsement applicant to obtain a licence without retaking the licensing examination and/or going through some complicated procedures. For instance, according to the Centre for Telemedicine Law (1997), 40 states in the US require some or all endorsement applicants to make a physical appearance before the local licensing board. In addition, the endorsement or registration fees vary considerably, ranging from $100 in Pennsylvania to over $1,000 in California and Texas.

Telehealth Practice under Registration

Under a registration system, a physician licensed in one jurisdiction would inform the authority of another jurisdiction that he/she wishes to conduct telehealth practice therein. Typically, he/she would not be required to meet all entrance and related requirements imposed upon those licensed in the host jurisdiction. However, by so registering, the physician would submit to the legal authority of the host jurisdiction and would be held accountable for breaches of professional conduct or other problems (US Department of Commerce, 1997).

Pros:

- As registration is generally a less restrictive form of occupational regulation, the process of registering tends to be less burdensome and costly than obtaining full licensure in another jurisdiction.

Cons:

- It is likely that medical practice under registration would entail certain conditions or restrictions, which may constrain what a physician can do.

Residual Categories

There are a couple of approaches that do not fit the categories described above. This is because while they are designed to deal with the problems confronting cross-border telehealth practitioners, they bypass the need to regard telehealth as a form of “electronic travelling” and do not belong to

the family of dual or multiple licensing schemes. Although they have not been advocated by Canadian telehealth or licensure experts, they should not be dismissed.

Teleconsultation as Recommendations

One way to bypass the locus-of-accountability dilemma is to view a telehealth consultant working from another jurisdiction as making recommendations only, with the referring physician in the patient's home jurisdiction retaining overall responsibility for the care of the patient (Berger and Cepelewicz, 1995; Gitlin, 1997). California has come close to adopting this approach. It has enacted legislation that allows for very liberal telehealth consultations between in-state and out-of-state physicians about patient conditions, with the proviso that the local physician retains ultimate control over the diagnosis and treatment of the patient.

Pros:

- By adopting this approach, it obviates the need to pretend that the patient has been "electronically transported" to the physician's location or vice versa.
- It makes dual or multiple licensure unnecessary, thus saving physicians, and indirectly the health care system, a lot of time and resources.

Cons:

- Because this approach puts the onus on the referring physician, it may not be acceptable or fair to him/her to have to bear complete responsibility. Furthermore, it is still unclear who would be held liable when a mishap occurs or in a situation involving negligence or malpractice. According to some, when liability is at issue, the courts will ultimately look to the substance of the transaction and not the licence category under which it takes place. Thus, those acting as telehealth consultants in another jurisdiction will not be immune from liability arising from negligence (Crolla, 1998).
- If the referring physician has to retain ultimate clinical responsibility, it may obligate him/her to be present at all telehealth sessions. In other words, two physicians would have to be present at all time. Such an arrangement can be inconvenient to referring physicians, particularly those in very busy rural practice, and expensive to the health care system.

Federal Licensure

This approach has been suggested in the US. According to the US Department of Commerce (1997), under a federal licensure system, health care practitioners would be issued one licence by the US federal government based on federally established standards and qualifications. This licence would be valid throughout the country and the federal regulations would pre-empt existing state licensure laws.

Pros:

- This approach would eliminate the need for dual or multiple licences for those who wish to conduct telehealth activities across jurisdictional boundaries and would avoid problems of inconsistencies among jurisdictions in relation to entry-into-practice requirements, standards and licensing processes. Because there is only one jurisdiction (that being the nation), the problems of locus of accountability no longer exist.

Cons:

- This approach could trigger a federal-provincial jurisdictional squabble because under the *Constitution Act* of 1867, the regulation of health care practitioners is a responsibility assigned to the provinces.
- It would be a very time-consuming, complex and costly process to design and implement a brand new licensure mechanism to replace the existing systems.

- Provincial/territorial government is generally seen to be more accountable to the residents of the province/territory and more responsive to their needs than a large, distant bureaucracy.

Related Issues

Although practitioner licensure is the focus of this chapter, it is important to mention several related issues. Practitioner licensure is an integral part of the Canadian health care system and is related to other elements in this complex system. Major changes in one aspect of the health care system are likely to affect, directly or indirectly, other aspects. However, because an in-depth examination of such related issues is beyond the mandate of the present study, the following discussion is cursory in nature. The intent is to alert readers to the fact that licensure issues cannot be considered in isolation.

Credentialling

An issue related to licensure is hospital or institutional credentialling. Credentialling refers to the institutional policies and procedures that determine whether a health care practitioner has the qualifications to be employed or be granted privilege to practice. This regulatory function is not usually discharged by the provincial or federal government. Typically, the institution in which the practitioner works assumes this responsibility. Credentialling applies to both in-province and out-of-province practitioners who do not have privileges at the hospital where the patient is located. A yet-to-be resolved issue is whether a telehealth consultant is required to be credentialled at both his/her base institution and the remote institution, which has requested his/her consultation service.

As Picard and Robinson (1996) have pointed out, a hospital's first responsibility to its patients is the selection of competent staff. More recently, this responsibility has been extended so that a hospital may be vicariously responsible for the actions of its employees, even if they are practitioners of self-regulating occupations. In view of the fact that it is not unusual to have hospitals sued for failure to select competent staff, one should expect hospitals to scrutinize telehealth projects very carefully. On the other hand, if all telehealth practitioners are required to be credentialled and if a significant number of institutions are involved, it could create administrative headaches for both practitioners and institutions. Also, does a hospital have a duty to monitor the competence and skill of remote practitioners to the same degree as it does with members of its own medical staff?

Accreditation

Accreditation is the process by which an agency evaluates and recognizes an institution or a facility and its programs as meeting certain predetermined standards. In provinces/territories where accreditation of facilities is required, a question may arise: How does one go about requiring, enforcing and performing accreditation of telehealth operations which, in many cases, are "virtual facilities?" To date, there are no satisfactory answers to this question. A related issue is the need to ensure the technical competence of those who use or operate diagnostic telehealth equipment. As well, there may be a need to ensure that equipment in all sites is compatible, consistent and meets certain standards.

Physician Workforce Planning

In the past several years, some provinces (e.g., British Columbia, Manitoba, and Ontario) have restricted the issuance of billing numbers to new physicians in an attempt to cap health care spending by controlling the number of doctors. Other provinces (e.g., New Brunswick, Ontario, and Quebec) have used differential fee schedules, hospital-privilege granting and other approaches as

means to affect the geographic distribution of physicians within the province. Such policies, regardless of their intent, could become largely ineffectual if telehealth is adopted widely because it transcends spatial distance and geopolitical boundary. Physician workforce planning in the future, particularly in relation to the geographic distribution of physicians, will have to consider telehealth practice.

Payment for Cross-border Telehealth Services

Unless there are agreements among jurisdictions to reimburse cross-border telehealth services, seeking mutual recognition of licences is largely an academic exercise. A physician in, say, Manitoba is unlikely to provide telehealth services to Saskatchewan patients, if he/she is not paid by Saskatchewan. Currently, through reciprocal billing arrangements, Canadian provinces and territories pay for medical services incurred by their residents when they are in another jurisdiction. It is not certain if such arrangements will be extended to include cross-border telehealth services. New Brunswick, for example, reimburses for specialist services provided at the IWK Grace Hospital in Halifax as part of the Maritime Telehealth Network. In addition, Quebec Medicare is compensated for the services of neurologists who read the EEGs of patients from northern New Brunswick (New Brunswick Provincial Telemedicine/Telehealth Coordinating Committee, 1998). However, these are special billing arrangements. Arrangements on a much broader scale are needed to facilitate cross-border telehealth services. Related issues include variations in fee schedules and inconsistencies in reimbursement policies.

As noted in earlier, some provinces have imposed strict control on physician numbers in an attempt to control health care spending. These provinces, as well as those that see the control of medicare expenditure as a high priority are unlikely, except in special circumstances, to reimburse out-of-province physicians for providing cross-border telehealth services, regardless of their licensure status.

Other Health Care Practitioners

Because of scope and time limitations, this chapter has focused almost exclusively on physicians. Nevertheless, providers in other health disciplines will likely play a bigger role in telehealth and they are equally interested in understanding the impact of telehealth on them. For instance, the federation of health regulatory colleges in Ontario, a coalition of the licensing bodies of regulated health professions, has formed a working group to discuss various telehealth issues. Many of the issues that are related to the licensing of other health care practitioners are similar to those that are discussed in this paper. There are, however, some unique issues pertaining to non-physician providers that warrant separate treatment. For example, some nursing organizations have voiced other concerns such as difficulties involving collective bargaining when the employer is in one jurisdiction and nurses are working in two or more jurisdictions via telehealth (Helmlinger and Milholland, 1997).

Conclusion

The discussion of licensure is timely because it is relevant not only to telehealth practice but also to a broader issue, namely, labour mobility. As the world is transformed by telecommunications into a “global village,” people become more mobile. “Mobility” is not just the physical movement of people from one location to another. Increasingly, it refers to mobility without physical mobility. People can now conduct business and work in another city, province, or country without being there in-person.

This has posed a major challenge to laws and rules, which have been developed over decades or generations, governing how work is to be done, the relationships between service providers and clients and the roles of the state in regulating such relationships.

The *Agreement on Internal Trade* was developed partly in response to the reality of an increasingly mobile and fluid society. It was signed by all First Ministers in 1994. The Labour Mobility Chapter of the Agreement establishes obligations for governments and occupational regulatory authorities in three areas: (1) removal of residency requirements as a condition of access to employment and of professional or occupational licensing, certification or registration; (2) licensing, certification, or registration is to be based principally on competence, is to be readily accessible and should not present unnecessary delays or financial burdens for workers from other Canadian jurisdictions; and (3) mutual recognition of occupational qualifications and reconciliation of occupational standards (Johnson and Pong, 1997).

The issues discussed in this paper are consonant with the spirit of the *Agreement on Internal Trade*. Even without the challenges posed by telehealth, regulatory authorities and jurisdictions are obligated by the Agreement to harmonize their licensure and certification requirements, to demolish artificial mobility barriers and streamline licensing processes in order to make them as least cumbersome as possible. Telehealth has given the tasks of implementing the Agreement another dimension of complexity and an added sense of urgency.

TELEHEALTH IN THE CHANGING HEALTH CARE SYSTEM

How successful telehealth will be and how widely it will be adopted, depend largely on its role in the health care system which is constantly evolving. On the one hand, the future of telehealth will be shaped by changes in the health care system. On the other hand, the extent of its success depends on its ability to take advantages of the changes taking place and how well it becomes a part of an integrated health care system.

In this chapter, some of the trends that may affect the adoption of telehealth as a health care delivery mechanism will be discussed. In particular, the role of telehealth in rural health service delivery is to be emphasized. Lastly, some of the potential benefits and risks of telehealth will be examined. It is important to know what role telehealth can play and how its potential risks can be minimized and its strengths accentuated.

Rural Health

Depending on whether the Statistics Canada definition or the OECD definition of “rural” is used, from about a quarter to about a third of Canadians can be considered rural residents (Pitblado and Pong, 1999). This is a significant number insofar as health services delivery is concerned. Some communities or regions, although not officially classified as “rural”, may experience similar difficulties in accessing health services because of their remote locations or deficiencies in the transportation system. The provision of adequate health services in rural, northern, and underserviced areas has been and will continue to be an important and difficult issue for ministries of health across the country. Despite persistent effort, the maldistribution of physicians and other practitioners and services is still a serious problem in many rural and remote communities. Rural residents and physicians in rural practice are becoming increasingly vocal in airing their concerns and urging policy-makers and health care administrators to take actions that are more effective. Organizations such as the Society of Rural Physicians of Canada have successfully put rural health issues on the national and provincial political agenda.

Poorer health status and generally inadequate services in many rural areas are not new issues or isolated incidents, but there appears to be a growing recognition that rural health issues need to be addressed and that the rural quality of life need to be improved. Rural Canada has increasingly emerged as an important focus of attention for policy-makers, particularly at the national level. This is reflected in the formation of the Interdepartmental Working Committee on Rural and Remote Canada, the launching of the Canadian Rural Partnership, the creation of the Rural Secretariat within the federal government, and the establishment of a new federal cabinet position - the Secretary of State for Rural Development. Similarly, rural health has received increased attention by federal politicians as exemplified by the recent release of a seminal position paper titled *Toward Development of a National Rural Health Strategy* and the creation of the Office of Rural Health within Health Canada. Two national rural health research conferences were held in late 1999, one in Saskatoon and the other in Prince George to discuss the future of rural health research. Both were held with federal funding support.

Ontario is not far behind in voicing its support for improved access to health services in underserviced regions of the province. In a recent business plan document, the Ontario Ministry of Health (1998) has committed to ensuring “that Ontarians have access to the services they need, when they need them and close to their home” (p. 3) by increasing “the number of physicians, including specialists, practising in areas with fewer physicians per population than the provincial

average" (p. 19). Dr. Robert McKendry of the University of Ottawa was appointed in 1999 by the Honourable Elizabeth Witmer, Minister of Health, to examine the problem of physician shortages in rural and northern Ontario and to recommend strategies to deal with this perennial problem.

Interest in and concerns about rural health are good omens for telehealth. Although telehealth technologies are useful for many purposes and applicable in most locations, its most important utility and economic justifications are still in providing linkages between major urban centres where most specialized medical resources can be found and rural or remote communities where such resources are in short supply or difficult to access. As Senator Bill Frist, in his opening remarks to the Subcommittee on Science, Technology, and Space of the US Senate Committee on Commerce, Science and Transportation, has said, "Perhaps the greatest impact of telemedicine will be on the 25 percent of the United States population who live in rural areas or 'health-shortage areas.' These are the citizens who have the most to gain by telemedicine - people who must drive for hundreds of miles to metropolitan health care centres just to see a doctor...." (quoted in Schanz, 1999: p. 11). Similarly, commenting on telehealth in his 1999 federal budget speech, the Honourable Paul Martin said that it "…holds extraordinary potential for the ability of doctors and nurses in rural and remote areas to communicate with the best specialists anywhere in the country" (quoted in Shaw, 1999: p. 18).

Persistent physician maldistribution problems, which may be made worse if predicted physician shortages become a reality (see below), will likely persuade policy-makers and health care planners to consider options other than the conventional financial penalties or incentives which have not been shown to be particularly effective. As telecommunications technologies become more sophisticated and affordable, the telehealth option becomes increasingly enticing. The ability to link telehealth with rural health policies, strategies, and programs is going to be important in ensuring a wider adoption of telehealth in Ontario and Canada.

Predicted Physician Manpower Shortage

There has been a lot of talk lately about a looming physician shortage in Ontario and Canada. A number of factors have contributed to the prediction of a medical labour shortfall. First, the population in Ontario is increasing, albeit at a very modest rate, and ageing. The general belief is that as the population ages, more medical and related services will be needed to deal with declining health. Second, because of cutbacks in medical school enrolment across the country in the early 1990s, the number of new physicians entering the workforce will soon experience an absolute decline. Third, the number of physicians leaving Canada appears to be increasing while, at the same time, the number of immigrant physicians allowed to practise in this country is still strictly controlled. Fourth, the physician workforce, like the general population, is ageing. The proportion of Ontario physicians under age 35 declined from 16% in 1991/92 to 11% in 1997/98, while the proportion of physicians aged 55-64 rose from 16% to 18% during the same period (Chan, 1999). Physicians tend to reduce their workload as they grow older. Finally, the number of women physicians has been growing and will continue to grow. The significance of this is that women physicians typically work less hours per week, see fewer patients per hour, are less likely to be specialists and are less prone to work in rural communities (Reamy and Pong, in press). While, as Barer and Stoddart (1991) have rightly pointed out, an optimal number of physicians cannot be defined by technical means, the prediction of a physician manpower shortage may come true if the aforementioned demographic and other trends coalesce and reinforce one another.

What does a looming physician "shortage" have to do with telehealth? The answer lies in the geographic distribution of physicians. If there is a maldistribution problem when the supply of physicians is "adequate," the problem will likely get much worse if and when there are insufficient physicians. In other words, rural areas and smaller, more remote communities will likely experience greater difficulties in attracting and keeping physicians, particularly specialists. In the not too distant past, communities that complained about physician shortages tended to be small or remote towns in northern Ontario. They are no longer alone in this predicament. More recently, much bigger urban centres in southern Ontario, such as Windsor, Kitchener-Waterloo, Peterborough, Guelph and the Niagara region, also claim to be medically underserviced. Telehealth, while not a panacea, can provide some relief by bringing physicians and patients or specialists and primary-care physicians together over long distances. Again, it will be important to be able to link telehealth within a broader medical labour strategy (Nesbitt et al., 1999).

It is, therefore, not surprising that some of the recommendations of the recently released report of the Fact Finder on Physician Resources in Ontario are related to the use of telehealth which, according to the author of the report, has "the potential to make scarce physician services more available" (McKendry, 1999: p. 86). The author recommends that:

> "Ontario should continue to invest in infrastructure to support telemedicine applications which involve the use of co-ordinated electronic communications networks to transmit information and data and to provide appropriate clinical services. The telemedicine network could be used to share information for diagnosis, consultation, treatment, education and training" (McKendry, 1999; p. 86).

Changes in Physician Payment Scheme

Deep cuts in health care spending appear to be over in Ontario, at least for now. According to the Ministry of Health's 1998/99 business plan, the projected health care operating spending of $18.7 billion in 1998/99 was an increase of more than $1 billion from 1995/96 (Ontario Ministry of Health, 1998). However, there is still considerable concern about health care cost escalation. It has been shown in an earlier chapter that physician reimbursement is one of the major impediments to acceptance of telehealth by governments. The fear of uncontrollable utilization, unpredictable spending and billing "abuse" has deterred most ministries of health from funding telehealth on a broad basis.

While about 94% of practising physicians in Ontario derive the bulk of their earnings by billing OHIP on a fee-for-service (FFS) basis (Chan, 1999), there appears to be a trend toward compensating physicians using alternative payment plans (APPs), i.e., non-FFS. More and more physicians, particularly recent graduates and those working in rural communities, welcome APPs. Even some specialists are not averse to APPs. For instance, physicians at the Hospital for Sick Children in Toronto and the Southeastern Ontario Academic Medical Organization at Queen's University are on APPs. One of the main aspects of the recently announced primary care reform pilot projects is to put physicians in the pilot projects on a non-FFS payment scheme either in the form of salary or capitation.

The conversion from FFS to APPs may reduce apprehension of uncontrollable utilization and unpredictable costs. Equally important is the fact that with APPs, there is no need for the Ministry of Health to design or negotiate a new funding mechanism or fee structure for telehealth practice. Telehealth services can be seen as part of the care that physicians provide. This partly explains the

relative ease by physicians in the Hospital for Sick Children in Toronto to participate in its telehealth programs since they are on salary and reimbursement for providing telehealth services is mostly a non-issue.

However, it should be pointed out that while it is the stated objective of the Ontario Ministry of Health to reform the way physicians are paid (Ontario Ministry of Health, 1996), FFS will likely remain the dominant mode of physician reimbursement in Ontario in the foreseeable future, particularly for specialists. Thus, the ability of telehealth programs to come up with innovative ways to compensate telehealth practitioners will help fast-track the adoption of telehealth or sustain its use.

Community-based Services and Primary Care Reform

Two of the most important strategic directions of the Ontario Ministry of Health, as well as of most other ministries of health in Canada, are the expansion of community-based services and primary care reform. The former emphasizes deinstitutionalization, hospital downsizing and the expansion of day-surgery, home care, community mental health and community-based long-term care. The latter is exemplified by the recently announced primary care reform pilot projects across the province. The stated objective is to ensure more accessible and comprehensive services and continuity of care by providing a full range of primary health services to an enrolled population within a defined geographic area.

What is interesting is that some elements of telehealth are built into the primary care reform initiatives in the form of teletriage. Nurses and other health care practitioners will be available to provide triage services and health advice over the telephone. Unrelated to the primary care reform initiatives but similar in intent is the telephone triage program called “DirectHealth” which has been established in North Bay since mid-1999 to provide telephone triage to northern Ontario residents. “DirectHealth” is funded by the Northern Ontario Heritage Fund Corporation. In its 1998/99 business plan, the Ministry also promised to conduct a feasibility study concerning a health telephone hotline which would provide important health information to seniors and others (Ontario Ministry of Health, 1998). Both the Health Services Restructuring Commission (1999) and the recently released Report of the Fact Finder on Physician Resources in Ontario have called on the Ministry of Health to consider incorporating teletriage as part of a primary health care strategy or extending teletriage services to other parts of the province where such services do not exist (McKendry, 1999). According to the Health Services Restructuring Commission (1999), “telephone triage service is an important enabler of 24-7 (i.e., 24 hours a day and 7 days a week) primary care coverage” (p. 11). Coincidentally, the Richard Ivey Foundation, a major charitable foundation in Ontario, has announced a 5-year Teletriage in Health Care granting program to support the expansion of teletriage services in the province.

Positioning Telehealth Strategically

It appears that at this time, the Ontario Ministry of Health is primarily interested in low-cost and low-technology telehealth services like teletriage and telephone health information dissemination. It seems that it has decided to take a go-slow approach or a wait-and-see attitude with respect to high-end telehealth services. It is worth pointing out that, unlike some other provinces, to date, the Ministry has yet to announce a formal policy on telehealth and that most of the major telehealth pilot projects in the province are financially supported not by the Ministry of Health, but by the

Ministry of Energy, Science and Technology and other sources of funding. This, no doubt, is dictated in part by the need to first address many still-unresolved policy issues in relation to telehealth such as those discussed in earlier chapters. The Ministry may also want to see how the various telehealth pilot projects in Ontario and other provinces perform and how other jurisdictions address various policy issues concerning telehealth and their implications.

On the other hand, low-end telehealth programs designed to support community-based health services or primary care, such as teletriage, tele-home care and tele-rehabilitation, may be more favourably received by the Ministry in the near future. Dr. Gordon Atherley, President of the Telehealth Association of Ontario, expressed a similar view when he said, "Telephone technology, under severe competitive pressures, is starting to produce devices with real promise for health care. Harnessing these in the service of the common problems of health care in the home must be our first focus in telehealth. Too many current telehealth applications are expensive, logistically cumbersome, and frankly impractical for home and community care" (Atherley and Bilas, 1998: p. 3).

This by no means implies that high-end telehealth such as tele-cardiology has no future in Ontario. But, given the current policy "vacuum" in Ontario in relation to telehealth, decisions regarding what kinds of telehealth service to provide and what kinds of investment in telehealth infrastructure to make have to be made strategically. It would appear that telehealth programs that can by-pass some of the knotty policy and legal issues, such as physician reimbursement, licensure, credentialling, liability, etc., might have a better chance of success. Thus, all things being equal, tele-radiology and tele-pathology are more likely than other specialties to be adopted in Ontario since seeing a patient face-to-face is typically not a requirement in these specialties. Tele-psychiatry appears to be another fast-track candidate as most psychiatrists are on APPs and problems concerning reimbursement can be dealt with more expediently.

Another way to circumvent policy constraints is to negotiate agreements concerning the provision of telehealth services between organizations, as UOHI has successfully done with the Pembroke General Hospital, the Nunavut government and some foreign countries. In most case, such agreements do not require the endorsement by or intervention of the Ministry of Health. The downside of this approach is that it is time-consuming, inefficient and costly, as each case has to be dealt with individually. Thus, it should be considered as a stop-gap measure or a transitional strategy while waiting and preparing for a more positive policy environment. It is worth pointing out that the policy environment is becoming more favourable, albeit slowly. As earlier chapters have noted, some progress has been made in relation to reimbursement and inter-jurisdictional licensure issues in a number of provinces. Success in other provinces and countries may eventually convince Ontario to move in the same direction.

It may also be advisable to consider offering a range of telehealth services, i.e., from low-end to high-end telehealth services, rather than putting all telehealth technologies and investments in one basket. A full range of services could conceivably include teletriage, tele-home care, continuing medical/professional education, health education for consumers and tele-consultation in a variety of specialties. The intent is to use the technology to the fullest extent, rather than focusing on one single area. Thus, UOHI's plan to broaden its telehealth services by cooperating with other institutions such as the Children's Hospital of Eastern Ontario and by examining the viability of tele-home care is strategically sound.

Most important of all, telehealth has to be designed and implemented as an integral part of an integrated health care system. Some health care planners and policy-makers regard Telehealth as another "add-on" or, even worse, as a distraction. It is also seen by some as a technology in

search of a purpose, instead of a technology in support of health care policies. Figuring out how telehealth can play a vital role in meeting the health care needs of the population or in furthering the strategic objectives of the health care system is the *sine qua non*. Telehealth should have a promising future if it can be shown that it can be used to support rural health, primary care, community-based services, regionalization of health service provision, etc. For instance, telehealth would be received favourably, if it can be used to link practitioners, facilities, and communities in a region as part of an effort to create an integrated regional network of health services. This is particularly important in regions where population centres and facilities are widely dispersed or where transportation is generally inadequate.

This leads logically to a discussion of how telehealth can support the health care system, particularly rural health care. To this end, it is important to know the potential benefits and risks of telehealth. The intent is to allow us to avoid some of the potential pitfalls and to take advantage of its potential benefits. The following discussion is based on what can he gleaned from the literature on telehealth and the findings from the HEARRT Demonstration Project and other telehealth pilot projects.

Potential Benefits and Risks

Although telehealth has a long history in Canada and world-wide, it is only recently that telehealth has begun to be implemented on a large enough scale to generate substantial empirical evidence. The following identifies some of the potential benefits and risks of telehealth.

Access to Services

A major promise of telehealth is that it will improve access to health services for residents of rural or remote areas. The concept of access is primarily concerned with the physical and temporal aspects of service availability – telehealth has had an effect on both. It is clear that telehealth has enhanced access by linking rural or remote locations to major medical centres (primarily academic health science centres). The HEARRT Demonstration Project convincingly demonstrated the ability to link small, remote centres such as Pembroke and Red Lake with a major quaternary medical centre.

There is also evidence that telehealth has resulted in more timely access to services. Results from an ear, nose and throat (ENT) telehealth project in Norway showed that waiting time was reduced from 3-4 months to 1-1.5 months for residents needing to consult a specialist (Bergmo, 1997). In addition, waiting time was reduced to zero for an estimated 50% of the patients who would normally have been referred to an ENT specialist but were treated by the local physician, who had, over the course of the project, acquired new skills and knowledge from the telehealth consultants.

In an evaluation of a multi-specialty telehealth project conducted in Alberta, Jennett et al. (1995) found that 34% of the patients (n=29), 89% of the nurses (n=9) and 50% of the consulting physicians (n=10) believed that waiting time had been reduced. Doze and Simpson (1997) conducted an evaluation of another Alberta telehealth project and found that 75% of the patients (n=32) *strongly agreed* and the remainder *agreed* with the statement: “I would rather use telepsychiatry than have to wait to see a psychiatrist”. Many researchers have reported anecdotal comments by patients praising the ability of telehealth to reduce waiting times.

Telehealth is also expected to decrease turn-around time, that is, between the time when a medical image/information/specimen is obtained to the time when a medical opinion or test result is made available. Several telehealth projects have recorded quicker turn-around times for viewing of, for example, x-rays (Bergmo, 1996; Project Steering Committee, 1998; Reid et al., 1998) and

echocardiograms (Trippi, 1996). It is reasonable to assume that turn-around time can be greatly reduced by using telecommunications where appropriate. Note, however, that the form of electronic transport can vary from fax to e-mail attachments to sophisticated telehealth systems and that some of the simpler systems have proven to be less expensive (Elford, 1998). The use of store-and-forward techniques may reduce the costs of transmission while permitting quick turn-around time.

There is partial evidence to suggest that telehealth may decrease patients' length-of-stay (LOS). For example, Rendina et al. (1998) found that neonates had a shorter LOS in the neonatal intensive care unit when the telehealth program was operational than before telehealth. However, the sample size of this study was relatively small and the methodology had to account for a number of known cardiological risk factors before identifying a significant difference of 6 days.

Effects on Patient and Provider Travel

Reduction in the need to travel in order to seek medical care is another potential benefit of telehealth. There are various savings such as transportation, accommodation, meals and lost wages. Intangible benefits may include less stress to patients, accompanying persons and providers, as well as economic benefits to local communities since fewer residents have to leave town to seek treatment. The HEARRT Demonstration Project has shown that patients in rural communities can achieve considerable savings by avoiding making unnecessary trips or reducing the number of trips to see specialists in major urban centres. Elford (1999) found that 97% (n=30) of parents in rural Newfoundland indicated that they would prefer tele-psychiatry to travelling to distant urban centres to see specialists and that the majority of patients, parents, and psychologists were *satisfied* or *very satisfied* with the tele-psychiatry sessions. Reduction in travel time is well-documented and the less-tangible benefits have been listed (e.g., Wright, 1998), but not quantified.

The HEARRT Demonstration Project has also shown that compared to having visiting specialist clinics in rural communities (e.g., Pembroke), specialist consultations via telehealth can be cost-effective if enough telehealth consultations are done. Cost savings to be achieved by means of telehealth would become more pronounced if the hub site is further away from the remote sites.

Maldistribution of Practitioners

Telehealth has been promoted as a method to help improve the delivery of health care services in rural and remote areas. However, many organizations and experts have been adamant that telehealth "is in no sense a potential solution to the shortage of primary care providers in rural communities and should not be promoted as such" (National Rural Health Association, 1998; Puskin, 1995; WONCA, 1998). The apprehension is that telehealth may, in fact, lead to a reduced need for providers and facilities to locate in rural or remote areas. Again, there has not been any opportunity for researchers to collect data to test these assertions.

A related concern is that telehealth networks may disrupt established referral patterns or bypass local expertise (NRHA, 1998; Siden, 1998; WONCA, 1998). In some telehealth projects, particularly those in the US, one of the goals has been to increase telehealth referrals to the hub institution (Rod Elford, personal communication; Lambrecht, 1997). These situations, however, are not unique to the States. Turf battles and patient poaching could exist in Canada, particularly if projects are developed without guidelines or without taking into consideration the health care needs of a community.

Support for Providers

Another potential benefit that has been mentioned by many researchers and realized in several projects is the ability of telehealth to increase opportunities for continuing professional education through formal, distance education, as well as through informal learning opportunities centred

around teleconsultations (Jennett et al., 1995; Reid et al., 1998). The HEARRT Demonstration Project has shown that continuing education sessions can effectively be delivered to physicians, as well as other health care practitioners, using telehealth technology. Distance education programs, however, need not use the most sophisticated telehealth systems. In a survey of 101 Canadian telelearning programs that focused on health, Jennett et al. (1998) found that 41% of the programs used audio/visual conferencing, 25% used multi-media (e.g., CDs) and 22% used internet sites, while the remainder used a variety of satellite or terrestrial delivery modes.

At present, the most worthwhile learning experience may be informal learning that occurs when the referring practitioners actively participate in teleconsultation. There is considerable anecdotal evidence that the referring practitioners are soon able to use the knowledge gained during teleconsultations to treat patients that they would have previously referred to specialists (Jennett et al., 1995; Project Steering Committee, 1998; Wright, 1998). The local physician involved in the Norwegian ENT telehealth project estimated that this "knowledge transfer effect" avoided referrals for 50% of the patients (Bergmo, 1997).

It is important that this informal learning is recognized as a significant educational opportunity for both the referring practitioner and the consulting practitioner (WONCA, 1998). Educational benefits to the consultant would include a greater awareness of rural or remote health issues and a better understanding of how health care is delivered in those communities (WONCA, 1998).

Patient-Provider Relationships

There are concerns that the use of telehealth may weaken the patient-practitioner relationship, which could then lead to more misunderstandings and greater risk of malpractice and more malpractice suits (American College of Cardiology, 1997). No malpractice suits in relation to telehealth practice have been filed to date in Canada or the States. This may be due in part to the low number of teleconsultations, the attention to detail that is characteristic of any pilot project and the preference to start with simple applications, such as follow-up sessions. The situation is expected to change as telehealth projects begin to offer more services to more patients. The issue of malpractice is unresolved, partially because there is no precedent. At present, it is uncertain how much liability can be justifiably assigned to the technical apparatus, the communications link, the referring practitioner and the consulting physician (American College of Cardiology, 1997; Wood and Whelan, 1996).

Quality of Life

Another purported benefit of telehealth is that quality of life will be improved for patients, family members and other residents of rural or remote areas. Positive impacts to patients stem from reduced stress due to more timely access to services, including shorter waiting times for referrals to specialists, test results, etc. In addition, patients would experience less stress due to reduction in travels to distant communities, staying closer to family and friends, etc. (Wright, 1998). This may also manifest itself in higher occupancy rates for local health care facilities (Bailes et al., 1997). These less-tangible benefits are hard to quantified but are strongly suggested by the high satisfaction ratings that patients give to telehealth consultations (Doze and Simpson, 1997; Elford, 1999; Jennett et al., 1995; Reid et al., 1998).

Quality of life is also expected to improve for health care providers. It has been suggested that telehealth may ease the workload of physicians and specialists practising in rural or remote areas. These practitioners would also benefit from reduced stress, knowing that their patients receive the necessary care in a shorter period of time. In addition, it is argued that formal and informal continuing education sessions via telehealth also have the advantage of reducing professional isolation for practitioners in rural areas (Hassol et al., 1997; WONCA, 1998) and their association

with telehealth projects might serve to increase the prestige of working in rural or remote communities (McCarthy, 1995).

Potential for Misuse

Some policy-makers fear that improved access to health care services will lead to misuse or overuse. There is little evidence to allay such fears, primarily because most telehealth projects are under-utilised (Hassol et al., 1997). The little evidence that does exist suggests that the availability of telehealth services does not necessarily lead to increased use. A telehealth project in northwestern British Columbia did not significantly increase the use of radiological services (Project Steering Committee, 1998). A telehealth project in North Carolina did not cause a significant increase in the number of echocardiograms (Rendina et al., 1998). However, in the absence of clear refutation from fully operational telehealth systems, the fear remains that improved access to services will release latent demand and encourage over-utilization – the moral hazard argument. Health care managers in the US have opined that possible misuse could vary in severity from using telehealth when it is not medically necessary, for example, to confirm diagnoses, to more serious abuse such as "gaming" (Grigsby et al., 1994, part 3). "Gaming" of the system might occur, for instance, if reimbursement schedules favour telehealth or if higher-fee procedures are deliberately chosen in order to offset the expense of operating telehealth equipment and communication links.

The following table summarizes the potential benefits and risks of telehealth, particularly in relation to rural health.

Table 1

Potential Benefits and Risks of Telehealth: A Summary

Issue	Potential Benefit	Potential Risk
Access to services	Improve overall access to services Earlier, more timely access Reduce travel costs for patients, accompanying persons, providers, visiting specialists	Moral hazard Release latent demand Reduction in face-to-face consultations Weaker patient-practitioner relationship, more misunderstanding, more malpractice suits Reduction in need for rural/remote facilities Patients come to expect access to specialist even when their condition could be addressed by local practitioners (WONCA, 1998) Patients fear that government will eliminate travel subsidies (Siden, 1998)

Issue	Potential Benefit	Potential Risk
Distribution of health care practitioners	In the short-term, may ease the burden on rural/remote practitioners	In the long-term may decrease the number of practitioners, particularly specialists, moving to rural/remote areas by providing another reason to stay in urban areas Disrupt established referral patterns of local specialists or experts Turf battles and patient poaching by institutions, specialties, professions (WONCA, 1998; NRHA, 1998; Siden, 1998)
Support for rural/remote practitioners	Easier, more timely advice/consultations Provide learning experiences for rural/remote physicians (WONCA, '98) Maintain/update skills and knowledge	Viewed as an attempt by specialists to extend their influence (WONCA, 1998) Foster dependency of rural/remote provider or rural health care system on technology Act as a disincentive to develop local expertise Foster dependency on a particular network Isolate providers who do not attend telehealth sessions
Continuing education for rural/remote practitioners	Improve availability of continuing education Reduce expenses, lost earnings to attend continuing education sessions in other cities	Reduce face-to-face networking opportunities
Quality of life for patients	Reduce time away from home/community Improve community well-being and cohesion	Increase isolation of community
Quality of life for rural/remote practitioners	Reduce professional isolation (Hassol et al., 1997; WONCA, 1998) Reduce workload and burnout Increase prestige through association with larger/teaching hospital (McCarthy, 1995)	Increase physical isolation by removing reasons to “get away”

The Future

One of the main reasons for discussing the potential benefits and risks of telehealth is to allow us to focus our attention and energy on exploiting the benefits that telehealth could bring to the health care system and on avoiding or mitigating the potential risks.

The future of telehealth depends, in part, on our ability to avoid its pitfalls and maximizing its strengths. However, the evidence to weigh the benefits and risks of telehealth is still incomplete.

Data from large, fully operational telehealth projects are still lacking and existing data, usually from relatively small or short-term projects, tend to be inconsistent. The worst fears of over-utilization have not been realized mostly because current telehealth systems are grossly under-utilized. Justifications from a cost-benefit perspective have been difficult to establish because under-utilized telehealth projects are expensive to start up and operate (Hassol et al., 1997).

Nonetheless, the promise of telehealth is so great that it seems unwise not to begin the widespread integration of telehealth into the health care system. At this stage, however, it is prudent to introduce some checks and balances to reduce the potential risks and to incorporate a feedback mechanism to alert us about negative outcomes before they are beyond control.

Telehealth is a new mode of service delivery with the potential to influence health care operations in Ontario and around the world. A staged implementation of a provincial telehealth network with interprovincial and international links and guarded by appropriate standards and feedback mechanisms seems justified. This may be one of the best ways to take advantage of the promise of telehealth while minimizing its risks.

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Appendix A

Results of Keyword Searches on Computerized Databases

Keyword searches using "telemedicine" or "telehealth" resulted in 1,208 and 2,715 references from the US National Library of Medicine (MEDLINE) and the Telemedicine Information Exchange (TIE), respectively (Table 1). The numbers of references with "reimbursement", "compensation" and "remuneration as keywords (in addition to having keywords of "telemedicine" or "telehealth") were 330 and 702 from MEDLINE and TIE, respectively. Separate searches conducted with “licensure”, “policy”, “regulatory” and “legal issues” as keywords (in addition to having keywords of "telemedicine" or "telehealth") resulted in 477 and 581 for MEDLINE and TIE, respectively (Table 2).

In addition, CRaNHR researchers searched the "References" section of articles, books and reports in possession in order to identify other relevant articles and reports.

CRaNHR researchers also searched the Internet for web sites using various search engines such as Alta Vista (http://www.altavista.digital.com/), Yahoo! Canada (http://www.yahoo.ca/) and Open Text (http://index.opentext.net/). CRaNHR found close to 50 sites, of which 30 are listed in Table 3. Relevant documents in these web sites were entered into the reference database and downloaded for review.

Appendix A-1
Counts of "Reimbursement" References in Major Computerized Databases (MEDLINE, TIE)

	Telemedicine		**Telehealth**	
	MEDLINE	*TIE*	*MEDLINE*	*TIE*
Total References	294	636	36*	66
Reimbursement Keywords				
Availability	10	26		0
Appraisal	1	1		0
Analysis	10	81		2
Evaluation	118	160		10
Effectiveness	0	57		1
Law	63	88		6
Statute	64	5		0
Legal (requirement)	0	50(0)		8(0)
Reimbursement mechanisms	10	104		0
Fees	3	2		1
Medicare/Medicaid	1	41		20
Compensation	1	1		1
Payment	7	18		17
Remuneration	5	0		0
Stipend	0	0		0
Wages	0	1		0
Salary	1	1		0

* *These references are not assigned to sub-categories because of the low number of references.*

Appendix A-2
Counts of "Licensure" References in Major Computerized Databases (MEDLINE, TIE)

	Telemedicine		**Telehealth**	
	MEDLINE	*TIE*	*MEDLINE*	*TIE*
Total References	441	581	36*	30
Licensure Keywords				
Appraisal	1	1		0
Analysis	10	81		2
Evaluation	118	160		10
Effectiveness	0	57		1
Law	63	88		6
Statute	64	5		0
Legal (requirement)	0	50(0)		8(0)
Licensure	35	46		3
Credentialling	32	8		0
Permit	37	17		0
Licensing	32	22		0
Examination	44	46		0
National Boards	2	0		0
Accreditation	3	0		0

** These references are not assigned to sub-categories because of the low number of references*

Appendix A-3
Alphabetical Listing of Organizations and Uniform Resource Locator (URL) for Telehealth Related Internet Sites

Name of Organization	URL	Comments
Arent Fox Telemedicine Home Page	http://www.arentfox.com/telemedicine.html	legal issues surrounding health info. Systems and telemedicine.
Bringing health care online : The role of information technologies	http://www.acl.lanl.gov/sunrise/Medical/ota/09ch5.txt	Office of Technology Assessment Documents
Canadian Institute for Health Information	http://www.cihi.ca/	partnership for health informatics and telematics
CANARIE outreach program in Health	http://www.canarie.ca/frn/outreach/health/telehealth/abstracts.html	-abstracts of programs/projects
Care Kit	http://sunnyokanagan.com/carekit/index.html	outline of telephone nursing by CyberHealth Consulting
East Carolina University Telemedicine program	http://www.telemed.med.ecu.edu/	East Carolina University Telemedicine program
European Federation for Medical Informatics (EFMI)	http://s1.cxwms.ac.uk/Academic/AGPU/staffpag/robinson/interest/medcomp/homepage.html	European Federation for Medical Informatics (EFMI), info. And web resources
European Health Telematics Observatory	http://www.ehto.be/	an observatory that collects, analyses, and makes available, in a user-friendly and multilingual manner, information in the field of health telematics.
Federal Telemedicine Gateway	http://www.tmgateway.org/gateway/	funding sources, programs, current services, etc.
Health Information Research Unit	http://HIRU.MCMASTER.CA/	McMaster University research centre investigating health informatics
Health Telematics Unit at The University of Calgary	http://ume.med.ucalgary.ca/~watanabe/htu/	forum and exchange of telematic related ideas and activities
Information Policy Advisory Council	http://www.ipac.gov.au/report/part3.htm	Australian ministerial online report of online services and infrastructure development in urban and rural AU
Internet Medical Education, Inc., Cardiac Arrhythmia	http://www.med-edu.com/htdocs/einthoven.html	CME based website for ECG case studies and decision

Name of Organization	URL	Comments
Advisory System		support for rural and general practitioners
John Mitchell and Associates, Australia	http://www.jma.com.au/teleradbiblio.htm	research bibliography
Journal of Technology Law &Policy	http://journal.law.ufl.edu/~techlaw/	publish articles that focus upon the legal and policy aspects of various technology issues
Journal of Telemedicine and Telecare	http://www.qub.ac.uk/telemedicine/jtt/index.html	journal is published quarterly by the Royal Society of Medicine, contents online
Legal Issues in Telemedicine	http://www2.asianconnect.com/untpdc/seal/telehealth/telemed/law.html	links to resources dealing with legal issues of telemedicine
Medical Informatics in Finland	http://s1.cxwms.ac.uk/Academic/AGPU/staffpag/robinson/interest/europe/finland.html	state of telemedicine and telematics in Finland
Medical Informatics in Germany	http://s1.cxwms.ac.uk/Academic/AGPU/staffpag/robinson/interest/europe/germany.html	state of telemedicine and telematics in Germany
MedWeb: Telemedicine	http://www.gen.emory.edu/MEDWEB/keyword/Telemedicine.html	Emory University Health Sciences Center Library s biomedical internet resources
New Canadian Institute For Health Care Communication	http://ww2.newswire.ca/releases/ February1998/19/c4466.html	news brief on the CIHCC
OSMH: Telehealth	http://www.osmh.on.ca/tele.htm	Orillia Soldiers Memorial Hospital and Hospital for Sick Kids telehealth project overview
Ottawa Heart Institute - home page	http://www.uottawa.ca/academic/med/temp/heart.html	OHI homepage via the University of Ottawa web site
Ottawa Heart Institute – Telemedicine	http://www.onet.on.ca/onet/opnpfaq/heart.html	OHI telemedicine
Primary Care Informatics in Norway	http://s1.cxwms.ac.uk/Academic/AGPU/staffpag/robinson/interest/europe/norway.html	state of telemedicine and telematics in Norway (Scandinavia)
Royal Ottawa Hospital Care Group – Terry Fox Mobile Clinic	http://www.rohcg.on.ca/	Royal Ottawa Hospital Care Group - Terry Fox Mobile Clinic
TecKnowledge Healthcare Systems	http://www.tecknowledge.com/	TecKnowledge Healthcare Systems Inc.

Name of Organization	URL	Comments
Teleconference Magazine	http://abctelecon.com/	Teleconference Magazine produced by Applied Business teleCommunications (ABC) which also hosts Telecon East conferences
Telehealth In Canada: Clinical Networking, Eliminating Distances	http://www.canarie.ca/eng/outreach/health/telehealth/tic_challenges.html#ethical	Ethical, Legal and Social Issues
Telemedicine and Telehealth Networks Magazine	http://www.telemedmag.com/	news and reviews of the telemedicine. market, contents online
Telemedicine Canada	http://www.tmed.org/	CME through the Toronto Hospital and Faculty of Medicine at U of T
Telemedicine Information Exchange (TIE)	http://208.129.211.51/	Telemedicine Information Exchange (TIE) searchable database funded by the National Science Foundation and Pacific Telecom
Telemedicine Networks and Physician Licensure	http://www.spp.umich.edu/courses/744/ writings/paper/ telemedicine.html	full text article with links to other resources
Telemedicine Related Activities	Http://www.fda.gov/cdrh/telemed.html	online report by the Center for Devices and Radiological Health
Telemedicine/TETRA - Memorial University of Newfoundland	Http://aorta.library.mun.ca/med/telemedicine/	research and development facility for informatics, techniques and telecommunication
Telemedicine: A State-Based Answer To Health Care In America by Brian Darer	Http://scs.student.virginia.edu/~vjolt/graphics/vol3/vol3_art4.html	article which appeared online in Virginia Journal of Law and Technology
TeleMedisys Homepage	Http://www.telemedisys.com/	technology based sales
Telnor	Http://www.tft.tele.no/telemedisin/welcome.html	Norwegian firm Telnor Research and Development's telemedicine pages
TExpo'98	Http://www.canarie.ca/health/TEXPO/	A National Meeting with an International Flavour
The American Telemedicine Association	Http://www.atmeda.org/news/states/	State Activities in Telehealth: Public/Private Sector Partnership Advancing the Field

Name of Organization	URL	Comments
The European Federation for Medical Informatics (EFMI)	Http://s1.cxwms.ac.uk/Academic/AGPU/staffpag/robinson/interest/medcomp/homepage.html	web resources provided by the EFMI
The European Telematics Horizontal Observatory Service	Http://www.tagish.com/ethos/tap/tap/22de_3a6.htm	
UK Telemedicine Projects	Http://www.dis.port.ac.uk/ndtm/uktm.htm	names of the institutions and organizations in the UK involved in Telemedicine and their respective application

Appendix B

Survey of Telehealth Experts

CRaNHR researchers contacted telehealth experts and government officials in Canada, the United States, Australia and selected European countries. The following are individuals who responded to the survey or were interviewed.

Individuals Contacted in Relation to Telehealth Reimbursement and Licensure Issues

Mr. Dick Alvarez, Canadian Institute for Health Information

Mr. Leonid Androuchko, Telecommunications Development Bureau, Geneva, Switzerland

Dr. Ken Babey, Society of Rural Physicians , Mount Forest, Ontario

Dr. Pierre Beaupré, College of Family Physicians of Canada, Quebec

Mr. Trine S. Bergmo, Department of Telemedicine, University Hospital of Tromso, Norway

Dr. Ken Boddy, University of Edinburgh, England

Ms. Trish Buckley, Australian Rural Health Research Institute, Moe, Victoria, Australia

Dr. John Carlisle, College of Physicians and Surgeons of Ontario, Toronto, Ontario

Ms. Julie Cassidy, Ministère de la Santé et des Services Sociaux, Quebec

Dr. S. Tim Cheung, University of Ottawa Heart Institute, Ottawa, Ontario

Dr. Rod Elford, Telemedicine Centre, Memorial University, Newfoundland

Dr. Robert Filler, Hospital for Sick Children, Toronto, Ontario

Ms. Jennifer Gait, British Columbia Ministry of Health

Dr. André Gareau, Legal Researcher, Alberta

Dr. Steven Gray, British Columbia Ministry of Health

Ms. Valerie Hagerman, NB Health and Community Services, New Brunswick

Mr. Joe Hovel, Centre for Rural Health, Monash University, Australia

Dr. Penny Jennett, Health Telematics Unit, Faculty of Medicine, University of Calgary

Dr. Andre Lacroix, Centre hospitalier de l'Universite de Montreal

Ms. Linda Lingley, Medicare, New Brunswick Health and Community Services

Mr. Denis Lyons, Physician Services, Alberta Health

Dr. Francis Mair, United Kingdom

Ms. Anne Marie Lanctot, Canadian Nurses Association

Dr. Robert Martel, Nova Scotia

Ms. Yvonne Morgan, Planning and Health, North Eastern District, Saskatchewan

Ms. Marguerite Muise, Registered Nurses Association of Nova Scotia

Major Dan Neuman, Canadian Forces Medical Group Headquarters

Mr. Leif Eric Nohr, Legal Advisor, University of Tromso, Norway

Dr. John Parboosingh, Royal College of Physicians and Surgeons of Canada, Ottawa, Ontario

Dr. Dan Reid, Medical Adviser to the Minister, Nova Scotia Ministry of Health

Dr. Ed Schollenberg, College of Physicians and Surgeons of New Brunswick

Mr. Jack Somers, Southern Health Board, Ireland

Mr. John Stenabaugh, Ontario Ministry of Health

Dr. Roger Strasser, Centre for Rural Health, Latrobe Regional Hospital, Moe, Victoria, Australia

Mr. Ian Sutherland, Saskatchewan Health

Mr. Jeff Sutton, Sudbury Regional Hospital, Sudbury, Ontario

Dr. J.P. Thierry, Catallaxie Symbion SA, France

Dr. David Topps, University of Calgary

Ms. Diane Tucker, Saskatchewan Health

Dr. Catherine Viens-Bitker, Assistance Publique-Hopitaux de Paris, Direction de la Politique Medicale Mission Telemedicine

Mr. John Watts, British Columbia Ministry of Health

Dr. Rob Williams, Timmins and District Hospital, Timmins, Ontario

Dr. John Wootton, Executive Director of Rural Health, Health Canada